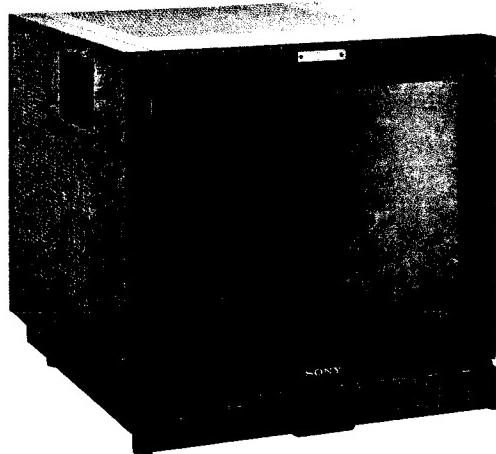


**SONY®**

TRINITRON® COLOR VIDEO MONITOR

**BVM-1911  
BVM-2011P**



*BVM-1911  
Chassis No. SCC-A97C-A  
BVM-2011P  
Chassis No. SCC-B26C-A*



OPERATION AND MAINTENANCE MANUAL

1st Edition

Serial No. 2000001 and Higher (BVM-1911)

Serial No. 2000001 and Higher (BVM-2011P)

## **WARNING**

### **For the customers in the USA**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

### **For the customers in Canada**

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

### **SAFETY-RELATED COMPONENT WARNING!!**

**COMPONENTS IDENTIFIED BY SHADING AND MARK △ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.**

**VORSICHT!!**

Hinweis für den Benutzer  
Das Gerät ist nicht für den Einsatz in Bildschirmarbeitsplätzen vorgesehen.

### **CAUTION!!**

**DO NOT USE THE EXTERNAL DEGAUSSER TO DEMAGNETIZE THE SCREEN.  
BE SURE TO USE THE DEGAUSS SWITCH ON THE FRONT PANEL.**

### **Bescheinigung des Herstellers/Importeurs**

Hiermit wird bescheinigt, daß der Farb-Videomonitor BVM-2011P in Übereinstimmung mit den Bestimmungen der BMPT-Amtsblatt Vfg 243/1991, 46/1992 funkentstört ist. Der vorschriftsmäßige Betrieb mancher Geräte (z.B. Meßsender) kann allerdings gewissen Einschränkungen unterliegen. Beachten Sie deshalb die Hinweise in der Bedienungsanleitung. Dem Bundesamt für Zulassungen in der Telekommunikation wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Sony Deutschland GmbH  
Hugo Eckener Str 20  
50829 Köln

### **ATTENTION AU COMPOSANT AYANT RAPPORT A LA SÉCURITÉ!!**

**LES COMPOSANTS IDENTIFIÉS PAR UN TRAMÉ ET UNE MARQUE △ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DES SUPPLÉMENTS PUBLIÉS PAR SONY. LES RÉGLAGES DU CIRCUIT QUI SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT SONT IDENTIFIÉS DANS CE MANUEL. SUIVRE LES PROCÉDURES QUAND LES COMPOSANTS CRITIQUES SONT remplacés OU LE FONCTIONNEMENT IMPROPRE EST SUSPECTÉ.**

### **ATTENTION!!**

**NE PAS UTILISER DE DÉMAGNÉTISEUR EXTÉRITUR POUR DÉMAGNÉTISER L'ÉCRAN.  
UTILISER LA TOUCH DE DÉMAGNÉTISATION (DEGAUSS) SUR LE PANNEAU FRONTAL.**

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# Section 1 Operation

## 1-1. Overview

### 1-1-1. Features

The BVM-1911 and BVM-2011P are high-performance color video monitors designed for critical evaluation of video signals in broadcasting stations and production houses.

The BVM-1911 is the NTSC model intended for use in NTSC color standard areas and the BVM-2011P is the PAL model for the PAL color standard areas. By using optional plug-in type decoder boards, both models permit any of the NTSC, PAL, SECAM, D1 and D2 video signals to be monitored.

The other features and operations are the same.

#### **High-resolution picture**

The Super Fine Pitch Trinitron picture tube (0.3-mm aperture grille pitch) gives a high resolution, high contrast picture. Horizontal resolution is more than 900 TV lines at the center of the picture.

#### **Stabilized color temperature**

The incorporated beam control circuit maintains the color temperature constant for a long period of time.

#### **Picture aspect selection**

In addition to the conventional 4:3 aspect, the 16:9 aspect can be selected for monitoring the increasing number of wide-screen programs.

#### **Split screen for precise picture confirmation**

The lower half of the picture can be displayed in monochrome mode while the upper half is displayed in color mode. This facilitates confirmation of the luminance and chrominance channels, evaluation of the noise in the chrominance or luminance channel, etc.

#### **Blue-only mode for precise evaluation of noise components**

In blue-only mode, an apparent monochrome display is obtained with all three control grids driven with a blue signal. This facilitates color saturation and phase adjustments and observation of VTR noise.

#### **Easy and precise convergence adjustment**

The convergence can be adjusted at 15 points (for 4:3-aspect pictures) of the screen. This system facilitates adjustment of the peripheral areas of the screen.

## Section 1 Operation

### Easy-to-use menu operations

The essential parameters to be preset for video monitoring can be easily set by selecting menu options displayed on the screen.

### Other features

- Picture setup function facilitating adjustment of the monitor's reference black for the black level of an incoming video signal
- Pulse cross function for simultaneous checking of the horizontal and vertical sync signals or VITS (Vertical Interval Test Signal)
- Built-in crosshatch and 100% white signal generators, facilitating monitor setup
- VITC (Vertical Interval Time Code) display possible using the optional BKM-1460 VITC adaptor
- Auto chroma/phase adjustment, automatic white balance adjustment etc. are possible using the optional BKM-2056 auto set-up adaptor.
- Precise setting of black level of the monitor, using the optional BKM-1480 black level signal generator
- A drawer containing convergence, white balance and menu controls and other function selectors
- High-performance comb filter available for the BVM-1911 as built-in standard. (For the BVM-2011P, the BKM-1422 is available as an option.)
- Auto and manual degaussing
- Three-position AFC switch
- Overdrive protection circuit to protect against picture tube damage
- EIA standard 19-inch rack mounting, using the optional BKM-2000 rack mount kit

### 1-1-2. Options

The following optional accessories are available for flexible changes and enhancement of the functions of the BVM-1911/2011P.

#### Caution

When installing the optional boards, be sure to perform the necessary settings by following the procedure mentioned in "To specify the installed optional boards" of "1-4-7. Defining the Monitor Configuration." If the settings are not correctly performed, the optional boards may not function properly.

**BKM-1410 NTSC adaptor (BC board)** [built-in standard for the BVM-1911]

Decoder board for the NTSC color system

**BKM-1411 NTSC comb adaptor (BB board)**

Comb filter board for the NTSC color system

---

**BKM-1412 NTSC comb adaptor (BT board)** [built-in standard for the BVM-1911]

Dynamic comb filter board for the NTSC color system

**BKM-1420 PAL adaptor (BD board)** [built-in standard for the BVM-2011P]

Decoder board for the PAL color system

**BKM-1421 PAL-M adaptor (BM board)**

Decoder board for the PAL-M color system

**BKM-1422 PAL comb adaptor (BT board)**

Comb filter board for the PAL color system

**BKM-1430 SECAM adaptor (BE board)**

Decoder board for the SECAM color system

**BKM-1440 RGB/component adaptor (BF board)**

Decoder outputs of RGB or component signals

**BKM-1460 VITC adaptor (BL board)**

Reader of Vertical Interval Time Code

**BKM-1470 safe area display (BQ board)**

For displaying the safe area

**BKM-1480 black level signal generator (BS board)**

For generating black level signals

**BKM-2000 rack mount kit**

For mounting in an EIA standard 19-inch rack

**BKM-2053 auto set-up probe**

For auto set-up operation with the BKM-2056 auto set-up adaptor

**BKM-2056 auto set-up adaptor (BN, BO and BP boards)**

For auto chroma/phase adjustment, auto white balance adjustment, and selection of color temperature

**BKM-2085-20 digital 4:2:2 serial input kit (BA3 and BV boards)**

For two serial inputs of component digital video signals

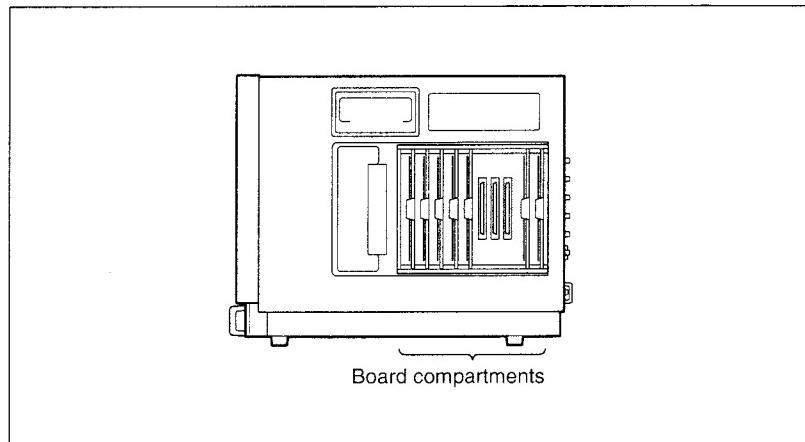
**BKM-2090-20 D-2 serial input kit (BA3 and BU boards)**

For serial input of a digital composite video signal

## Section 1 Operation

### Combination of the optional boards

The BVM-1911/2011P is equipped with the board compartments B1 through B5 behind the right-side panel, each of which can hold an optional board selected from the B boards listed above.



Right-side view

The BVM-1911 comes from the factory with the BT (NTSC comb adaptor) and BC (NTSC adaptor) boards installed in compartments B4 and B5.

The BVM-2011P comes from the factory with the BD (PAL adaptor) boards installed in compartment B5.

Note that the combinations of boards are limited by the allowable board assignments, as shown in the table on the next page.

Add the desired boards or replace the supplied BT, BC or BD board with optional boards, referring to the table on the next page.

#### Notes

- The compartments other than B1 through B5 are reserved for the supplied BA, BG, BH, BI and BJ boards. Be sure to use these boards in the respective compartments having the same names.
- Do not leave compartment B5 empty. Be sure to insert one of the boards specified in the table on the next page. If no board is inserted, the luminance/chrominance or luminance channel will not be activated in composite signal mode.

Board assignment

| Board name               | Function                       | Compartment name |    |    |    |    |
|--------------------------|--------------------------------|------------------|----|----|----|----|
|                          |                                | B5               | B4 | B3 | B2 | B1 |
| BB (BKM-1411)            | NTSC comb filter               | X                | ○  | ○  | ○  | ○  |
| BT (BKM-1412)            | NTSC comb filter               | ○                | ○  | ○  | ○  | ○  |
| BT (BKM-1422)            | PAL comb filter                | ○                | ○  | ○  | ○  | ○  |
| BC (BKM-1410)            | NTSC decoder                   | ○                | ○  | ○  | ○  | ○  |
| BD (BKM-1420)            | PAL decoder                    | ○                | ○  | ○  | ○  | ○  |
| BE (BKM-1430)            | SECAM decoder                  | ○                | ○  | ○  | ○  | ○  |
| BM (BKM-1421)            | PAL-M decoder                  | ○                | ○  | ○  | ○  | ○  |
| BF (BKM-1440)            | RGB/component adaptor          | X                | X  | ○  | X  | X  |
| BL (BKM-1460)            | VITC reader                    | X                | X  | X  | ○  | X  |
| BQ (BKM-1470)            | Safe area display              | X                | △  | X  | ○  | X  |
| BS (BKM-1480)            | Black level signal generator   | ○                | ○  | ○  | ○  | ○  |
| BN, BO, BP<br>(BKM-2056) | Auto set-up adaptor            | ○                | ○  | X  | X  | X  |
| BV, BA3<br>(BKM-2085-20) | Digital 4:2:2 serial interface | X                | X  | X  | X  | ○  |
| BU, BA3<br>(BKM-2090-20) | D-2 serial interface           | X                | X  | X  | X  | ○  |

○ : acceptable

× : not acceptable

△ : acceptable but the switch or control settings on the subcontrol panels cannot control the display.

**Notes**

- Do not use the BD (PAL decoder) and the BM (PAL-M decoder) boards simultaneously. This causes malfunctions of the monitor.
- Do not use the BB (NTSC comb filter) and the BT (NTSC comb filter) boards simultaneously. This causes malfunctions of the monitor.

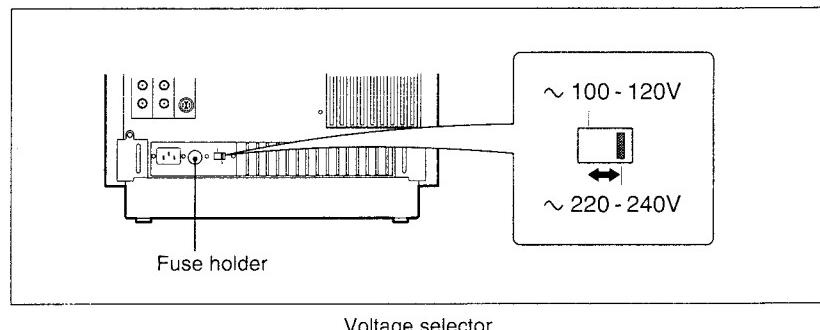
*For details on installation and functions of the optional boards, refer to the operation and maintenance manuals of the boards.*

## Section 1 Operation

### 1-2. Voltage Selection

The BVM-1911 operates on 100-120 V AC and the BVM-2011P operates on 220-240 V AC.

Before connecting the unit to an AC outlet, make sure the voltage selector at the rear of your monitor is set for the appropriate voltage. If not, change the position of the selector.

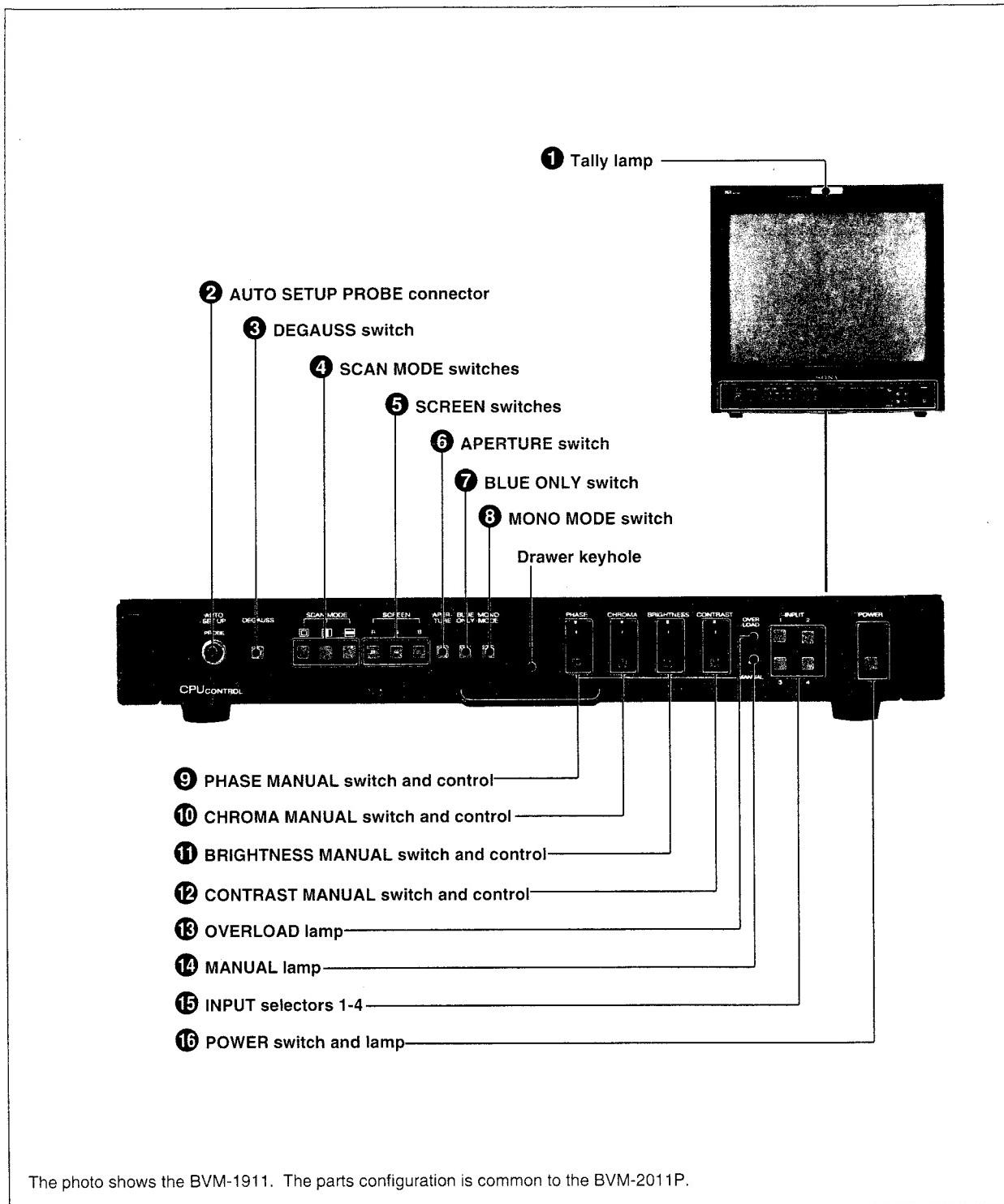


#### Note

Use a 4A/125 V fuse for the BVM-1911 (100-120 VAC) and a T2A/250V fuse for the BVM-2011P (220-240 V AC). The appropriate fuse is installed at the factory in accordance with the voltage presetting.

## 1-3. Location and Function of Parts

### 1-3-1. Front Panel

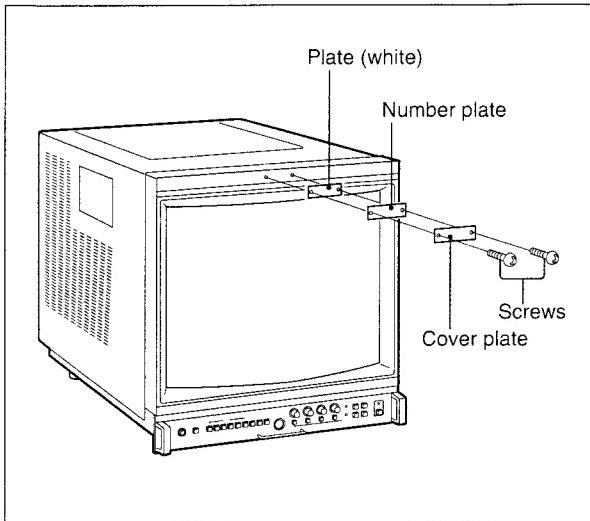


Front panel

## Section 1 Operation

### ① Tally lamp

Lights when pin No. 3 and No. 8 of the REMOTE connector on the rear panel are short-circuited. The model number plate has been attached here at the factory. Replace it with one of the supplied tally number plates, as illustrated below.



### ② AUTO SETUP PROBE connector

Connect the optional BKM-2053 auto set-up probe for auto setup operations.

### ③ DEGAUSS switch

When the power is turned on, automatic degaussing is activated.

To demagnetize the screen manually, press this switch momentarily with the power on.

When degaussing repeatedly, wait for 5 minutes or more before pressing the switch again.

### ④ SCAN MODE switches

(underscan): Depress this switch for underscanning. The display size is reduced by approximately 3% so that four corners of the raster are visible.

(horizontal delay): Depress this switch to observe the horizontal sync signal in the left quarter of the screen. Picture brightness is automatically increased for easy observation.

(vertical delay): Depress this switch to observe the vertical sync signal. The picture is shifted vertically and the vertical sync signal is displayed near the center of the screen. Picture brightness is automatically increased for easy observation.

- A pulse cross is displayed by depressing both the  and  switches.
- To resume normal scanning, press to release the depressed switches.

### ⑤ SCREEN switches

The R, G and B switches turn the red, green and blue beams respectively on and off. To turn off the beam, depress the switch. To turn it on again, press to release it.

### ⑥ APERTURE switch

Normally keep this switch released. A flat frequency response is obtained.

For aperture correction, depress this switch and adjust the APERTURE control inside the drawer. The boost frequency, 4.5 MHz or 6.5 MHz, can be selected with the S1 switch on the internal BG board.

With the S1 switch set at the 4.5 MHz position, the frequency response can be adjusted continuously with up to 6 dB boost at 4.5 MHz for subjective enhancement of the displayed picture.

With the S1 switch set to the 6.5 MHz position, the frequency response can be adjusted continuously with up to 6 dB boost at 6.5 MHz for compensation of aperture loss of the CRT.

### ⑦ BLUE ONLY switch

Normally keep this switch released. Depress this switch to turn off the red and green signals. A blue signal is displayed as an apparent monochrome picture on the screen. This facilitates CHROMA and PHASE control adjustments and observation of VTR noise.

## **⑧ MONO MODE switch**

Normally keep this switch released (AUTO mode). Color or monochrome mode is automatically selected according to the presence or absence of color burst. Depress the switch to display color pictures in monochrome (MONO mode).

## **⑨ PHASE MANUAL switch and control**

When this switch is in the released position, the subcarrier phase preset with the PRESETS menu operation is obtained. To adjust the subcarrier phase manually, depress the switch and turn the control.

*See "1-4-3. Presetting the Picture Levels."*

### **Note**

The PHASE MANUAL switch and control are disabled when the SECAM system is selected (the SECAM lamp is lit) with the SYSTEM button in the drawer, or the PAL system is selected (PAL lamp is lit) with selecting PAL D mode (the PAL S/SECAM F/COMB S lamp is not lit).

## **⑩ CHROMA MANUAL switch and control**

When this switch is in the released position, the color saturation preset with the PRESETS menu operation is obtained.

To adjust the color saturation manually, depress the switch and turn the control.

*See "1-4-3. Presetting the Picture Levels."*

## **⑪ BRIGHTNESS MANUAL switch and control**

When this switch is in the released position, the brightness preset with the PRESETS menu operation is obtained.

To adjust the brightness manually, depress the switch and turn the control.

*See "1-4-3. Presetting the Picture Levels."*

## **⑫ CONTRAST MANUAL switch and control**

When this switch is in the released position, the contrast preset with the PRESETS menu operation is obtained.

To adjust the contrast manually, depress the switch and turn the control.

*See "1-4-3. Presetting the Picture Levels."*

## **⑬ OVERLOAD lamp**

Lights to warn of overloading of the CRT.

## **⑭ MANUAL lamp**

Lights when any of the four MANUAL switches ⑨ through ⑫ is depressed.

## **⑮ INPUT selectors 1 - 4**

Select the input signal to be monitored by pressing one of these buttons.

The requirements of the input signals can be set with the CONFIGURATION buttons in the drawer and can be assigned independently to the selectors and stored in memory through the INPUT CONFIG menu operation.

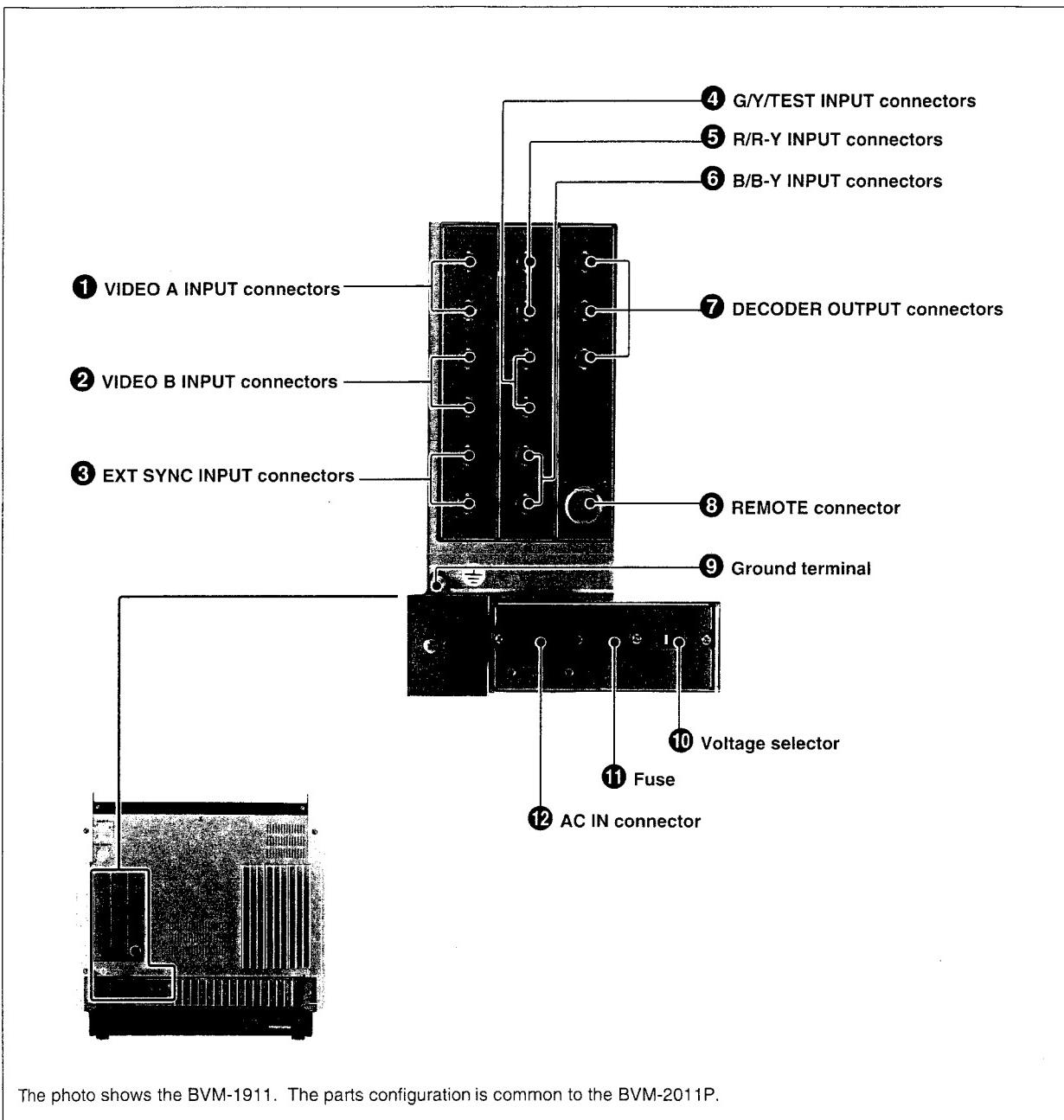
*See "1-4-2. Setting the Input Configuration."*

## **⑯ POWER switch and lamp**

Depress this switch to turn on the power. The lamp lights. To turn it off, press the switch again.

## Section 1 Operation

### 1-3-2. Rear Panel



Rear panel

#### **1 VIDEO A INPUT connectors (BNC)**

#### **2 VIDEO B INPUT connectors (BNC)**

Input composite video signals.

Use one connector of each pair for input and the other for loop-through output.

When the loop-through output is not used, attach a 75-ohm terminator.

#### **3 EXT SYNC INPUT (external sync input connectors (BNC))**

Input a sync signal.

Use one connector for input and the other for loop-through output.

When the loop-through output is not used, attach a 75-ohm terminator.

#### **④ G/Y/TEST INPUT connectors (BNC)**

#### **⑤ R/R-Y INPUT connectors (BNC)**

#### **⑥ B/B-Y INPUT connectors (BNC)**

Input RGB video signals, component signals or a composite test signal. The signal format can be selected with the FORMAT button in the drawer. Use one connector of each pair for input and the other for loop-through output.

When the loop-through output is not used, attach a 75-ohm terminator.

#### **⑦ DECODER OUTPUT connectors (BNC)**

Output RGB or component (Y, R-Y, B-Y) outputs decoded from the composite (VIDEO A, VIDEO B or TEST) or component signals being displayed on the screen with the BKM-1440 RGB/component adaptor installed.

The RGB or component outputs are selected with the S1 selector on the BF board of the BKM-1440 kit.

To provide RGB output, set the S1 selector to the upper position.

To provide component output, set it to the lower position.

#### **Notes**

- The DECODER OUTPUT connectors do not provide the correct RGB outputs when RGB signals are displayed on the screen. To obtain the correct RGB outputs, use the loop-through outputs of the R, G and B INPUT connectors.
- The outputs obtained from noncomposite signals are also noncomposite. Supply a sync signal from the EXT SYNC INPUT connector when required.
- The output signals are affected by the CHROMA, PHASE and APERTURE controls and MATRIX switch.
- The color killer circuit is not activated for output signals.

#### **⑧ REMOTE connector**

Connect to an external control device using the supplied 10-pin connector.

To enter remote control mode, press the LOCAL/REMOTE button in the drawer so that the associated lamp lights.

The input mode and the pin assignment can be set through the REMOTE menu operation.

See "1-4-6. Assigning the Remote Control Functions."

#### **⑨ Ground terminal**

Connect to the system ground, when required.

#### **⑩ Voltage selector**

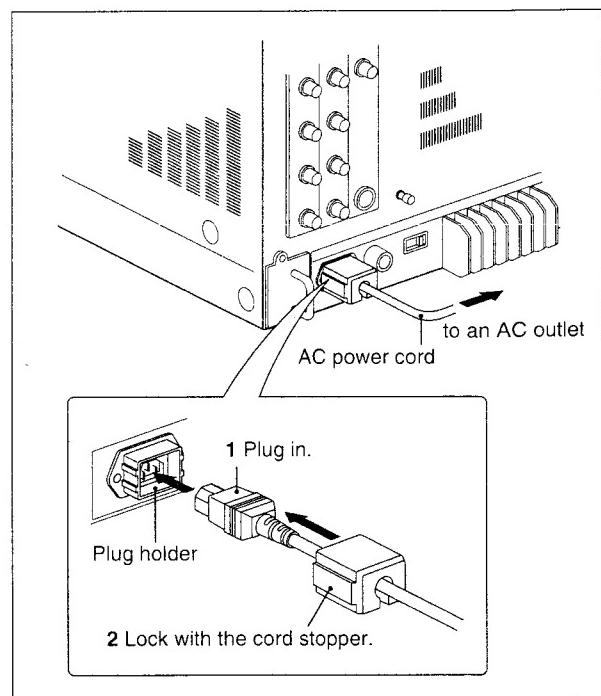
Set to 100-120 V AC for the BVM-1911 or 220-240 V AC for the BVM-2011P.

#### **⑪ Fuse**

Use a 4A fuse for the BVM-1911 or a T2A fuse for the BVM-2011P.

#### **⑫ AC IN connector**

Connect the supplied AC power cord here and secure it with the supplied cord stopper.



#### **NOTICE**

THIS NOTICE IS APPLICABLE FOR THE USA ONLY.

If shipped to the USA, use the UL LISTED power cord specified below for 220 - 240 V AC operation.

DO NOT USE ANY OTHER POWER CORD.

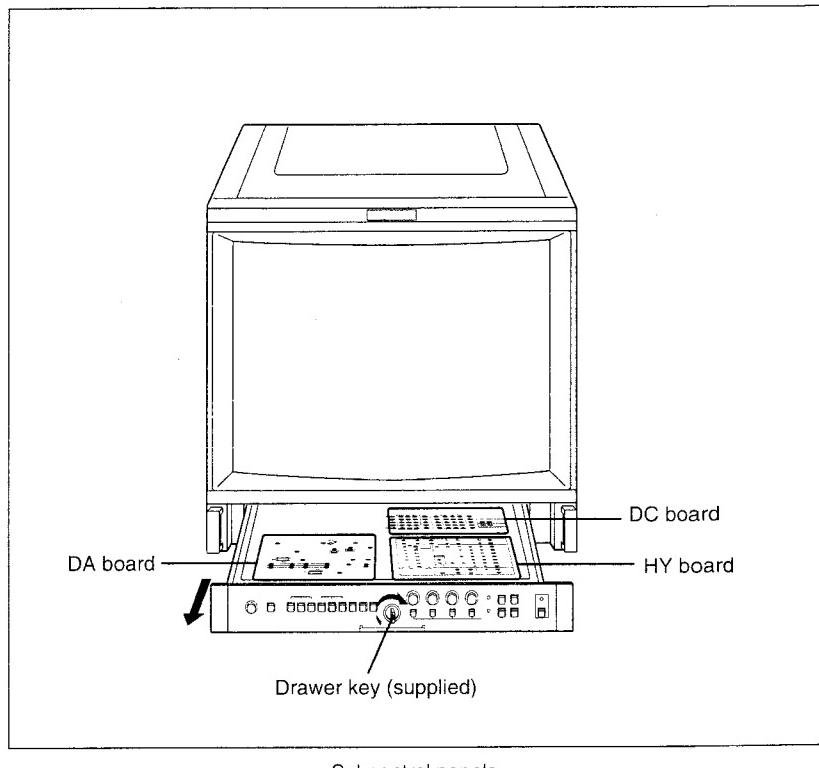
|          |                                    |
|----------|------------------------------------|
| Plug cap | Tandem blade with ground pin       |
| Cord     | Type SJT, three 16 or 18 AWG Wires |
| Length   | Maximum 15 feet                    |
| Rating   | Minimum 10 A, 250 V AC             |

## Section 1 Operation

### 1-3-3. Subcontrol Panels inside the Drawer

Insert the supplied drawer key into the keyhole of the drawer lock, turn it 90° clockwise and pull the drawer out.

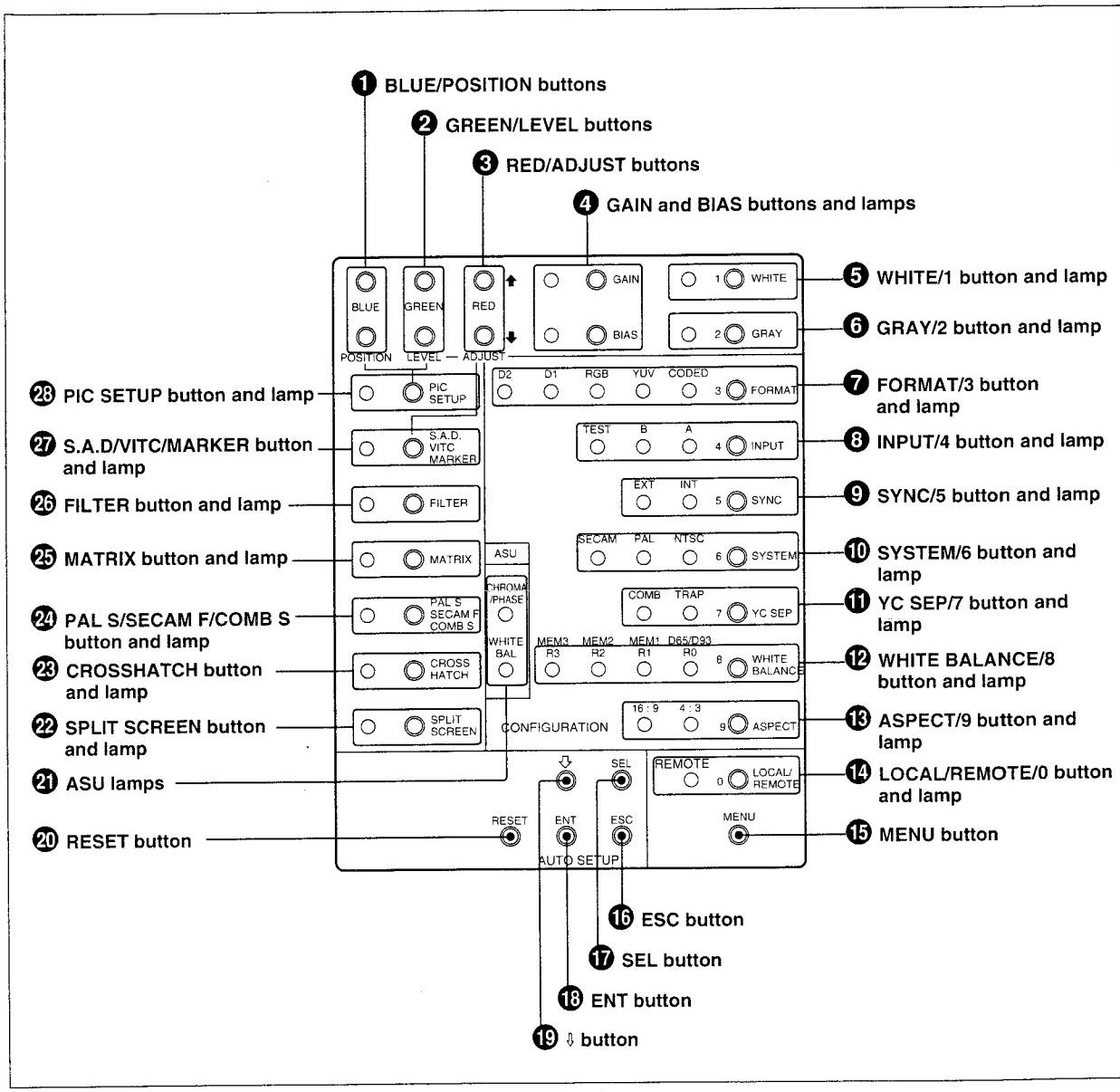
Adjust the button and controls on the subcontrol panels when the monitor is fully warmed up. Warm-up time will be at least 30 minutes after the power has been turned on.



Subcontrol panels

For turning the controls on the DA and DC boards, use the supplied screwdriver.

## HY board (input configuration, menu and auto setup operation section)



HY board

### ① BLUE/POSITION buttons

When adjusting white balance (the GAIN or BIAS lamp is lit), use these buttons to adjust the blue signal.

When adjusting the black level (the PIC SETUP lamp is lit), use them to adjust the position of the input signal checking zone.

### ② GREEN/LEVEL buttons

When adjusting white balance (the GAIN or BIAS lamp is lit), use these buttons to adjust the green signal.

When adjusting the black level (the PIC SETUP lamp is lit), use them to adjust the brightness of the black reference area.

## Section 1 Operation

### ③ RED/ADJUST buttons

When adjusting white balance (the GAIN or BIAS lamp is lit), use these button to adjust the red signal.

When the safe area is displayed (the S.A.D/VITC/MARKER lamp is lit), use them to adjust the safe area size.

### ④ GAIN and BIAS buttons and lamps

When adjusting the white balance, select the adjustment items.

**BIAS:** Adjust the white balance at the lowlight and brightness of the screen.

**GAIN:** Adjust the white balance at the highlight and contrast of the screen.

For the adjustments, use the BLUE/POSITION, GREEN/LEVEL and RED/ADJUST buttons.

### ⑤ WHITE/1 button<sup>1)</sup> and lamp

When adjusting the white balance at the highlight, press this button so that the lamp lights. The internal 100% white signal is displayed on the screen. To turn off the signal, press the button again.

### ⑥ GRAY/2 button<sup>1)</sup> and lamp

When adjusting the white balance at the lowlight, press this button so that the lamp lights. The internal gray signal is displayed on the screen. To turn off the signal, press the button again.

### ⑦ FORMAT/3 button<sup>1)</sup> and lamps

Select the signal format according to the signal to be monitored. Press this button so that the lamp of the appropriate format lights.

**CODED:** For monitoring NTSC, PAL or SECAM signal with the decoder board (BC, BD, BE or BM) installed.

**YUV:** For monitoring Y/R-Y/B-Y component signals.

**RGB:** For monitoring RGB signals.

**D-1:** For monitoring D-1 format component signals.

**D-2:** For monitoring a D-2 format composite signal.

### ⑧ INPUT/4 button<sup>1)</sup> and lamps

When monitoring a composite signal, select the input connector.

Press this button so that the lamp of the appropriate connector lights.

**A:** For monitoring the signal connected to the VIDEO A INPUT connector.

**B:** For monitoring the signal connected to the VIDEO B INPUT connector.

**TEST:** For monitoring the test signal connected to the G/Y/TEST connector.

### ⑨ SYNC/5 button<sup>1)</sup> and lamp

Select the sync mode. Press this button so that the lamp of the appropriate mode lights.

**INT (internal sync mode):** The unit operates in synchronization with the sync signal of the composite signal being displayed on the screen.

**EXT (external sync mode):** The unit operates in synchronization with the sync signal supplied from the EXT SYNC INPUT connector.

### ⑩ SYSTEM/6 button<sup>1)</sup> and lamps

When monitoring a composite signal or a signal decoded with a decoder board (BC, BD, BE or BM), select the color system according to the signal to be monitored. Press this button so that the lamp of the appropriate system lights.

**NTSC:** For monitoring a signal of the NTSC color system.

**PAL:** For monitoring a signal of the PAL color system.

**SECAM:** For monitoring a signal of the SECAM color system.

#### Note

If the decoder board for the selected color system has not been installed:

- The picture does not appear when the FILTER lamp is lit (FILTER ON).
- The picture is displayed in monochrome when the FILTER lamp is not lit (FILTER OFF).

1) These buttons also function as numeric keys when specifying the password.

See "I-4-5. Changing and Applying the Password."

## **⑪ YC SEP(Y/C separation filter)/7 button<sup>1)</sup> and lamps**

For NTSC or PAL signal, select the filter to be used for Y/C separation. Press the button so that the lamp of the appropriate filter lights.

**COMB:** To use the comb filter with the comb filter board (BB or BT) installed.

**TRAP:** To use the built-in trap filter.

### **Note**

When the appropriate comb filter board has not been installed, the trap filter is activated regardless of the setting with this button.

## **⑫ WHITE BALANCE/8 button<sup>1)</sup> and lamps**

Select the white balance and picture levels stored in the respective registers. Press this button so that the lamp of the appropriate register lights.

At the factory, the white balance for D6500 has been stored in all the registers.

**D65/D93 R0:** To use the white balance and picture levels stored in register 0.

**MEM 1 R1:** To use the white balance and picture levels stored in register 1.

**MEM 2 R2:** To use the white balance and picture levels stored in register 2.

**MEM 3 R3:** To use the white balance and picture levels stored in register 3.

*For details, see "1-4. Menu Operations."*

## **⑬ ASPECT/9 button<sup>1)</sup> and lamps**

Select the aspect ratio of the picture to be monitored. Press this button so that the lamp of the appropriate ratio lights.

**4:3:** For the 4:3 aspect

**16:9:** For the 16:9 aspect.

## **⑭ LOCAL/REMOTE/0 button<sup>1)</sup> and lamp**

To enable the monitor to be controlled from an external control device connected to the REMOTE connector on the rear panel, press this button so that the lamp lights (REMOTE mode). To disable the remote control (LOCAL mode), press the button again.

*For the remote control functions, see "1-4-6. Assigning the Remote Control Functions."*

## **⑮ MENU button**

Press to initiate menu operations. The initial menu is displayed.

## **⑯ ESC (escape) button**

Press to quit menu or auto setup operations.

## **⑰ SEL (select) button**

Press to set the monitor to color temperature selection mode in auto setup operations. In color analyzer mode, select the memory position of the probe connected to the AUTO SETUP PROBE connector.

*For details, refer to the operation and maintenance manual of the BKM-2056 auto set-up adaptor.*

## **⑱ ENT (enter) button**

Press to proceed to the next step during menu or auto setup operation and save the data.

## **⑲ ↓ (cursor) button**

For selecting menu options displayed on the screen in menu or auto setup operations. Each time this button is pressed, the cursor moves downwards and, if at the bottom, jumps to the top.

## **⑳ RESET button**

Press to reset an auto setup operation.

## **㉑ ASU (automatic setup) lamps**

**CHROMA/PHASE:** Lights when the automatic chroma and phase adjustment is completed with AUTO CHROMA/PHASE in auto setup operations. The lamp goes off when MANUAL is selected on the SELECT MONITOR MEM menu is selected in auto setup operations.

**WHITE BAL:** Lights when one of the color temperature to be transferred to the monitor by the auto white balance adjustment is selected on the SELECT MONITOR MEM menu in auto setup operations. When this lamp is lit, the color temperature selection on the SELECT MONITOR MEM menu can be performed using the WHITE BALANCE/8 button.

1) These buttons also function as numeric keys when specifying the password.

*See "1-4-5. Changing and Applying the Password."*

## Section 1 Operation

### **22 SPLIT SCREEN button and lamp**

To display the lower half of the picture in monochrome mode, press this button so that the lamp lights. Press this button again to resume the normal picture.

### **23 CROSSHATCH button and lamp**

To display the internal crosshatch pattern for convergence adjustment, press this button so that the lamp lights.

The crosshatch pattern is synchronized with the selected composite sync signal.

To turn off the pattern, press the button again.

### **24 PAL S/SECAM F/COMB S button and lamp**

#### **While monitoring a PAL signal, the**

demodulation mode of the the PAL system can be switched. When this button is pressed and the lamp lights, S (simple) mode is selected.

By pressing the button to turn off the lamp, D (deluxe) mode is selected.

#### **While monitoring a SECAM signal, the ID**

signal of the the SECAM system can be switched. When this button is pressed and the lamp lights, the F (field) signal is selected. By pressing the button to turn off the lamp, the L (line) signal is selected.

#### **When the BKM-1411/1412 NTSC comb filter is**

**activated**, the comb filter mode can be switched. When this button is pressed and the lamp lights, the S (simple) comb filter is selected. By pressing the button to turn off the lamp, the D (dynamic) comb filter is selected.

### **25 MATRIX button and lamp**

Should normally be OFF (lamp not lit).

By pressing this button so that the lamp lights (ON), the matrix circuit is activated and the chromaticity of the displayed picture more closely approximates to that of "true" NTSC phosphors.

To turn off the matrix circuit, press the button again.

### **26 FILTER button and lamp**

To activate the comb or trap filter (selected with the YC SEP button) in MONO mode (MONO MODE switch on the front panel depressed), press this button so that the lamp lights.

To deactivate the filter for a wider frequency range, press the button again.

#### **Note**

In AUTO mode (the MONO MODE switch released), the filter is always activated for color signals regardless of the setting with this button.

### **27 S.A.D (safe area display)/VITC/MARKER button and lamp**

**When the safe area is displayed** with the BQ board (BKM-1470 safe area display) installed, the adjustment of the safe area size can be enabled.

**When the BL board (BKM-1460 VITC adaptor) has been installed**, the VITC display can be turned on and off.

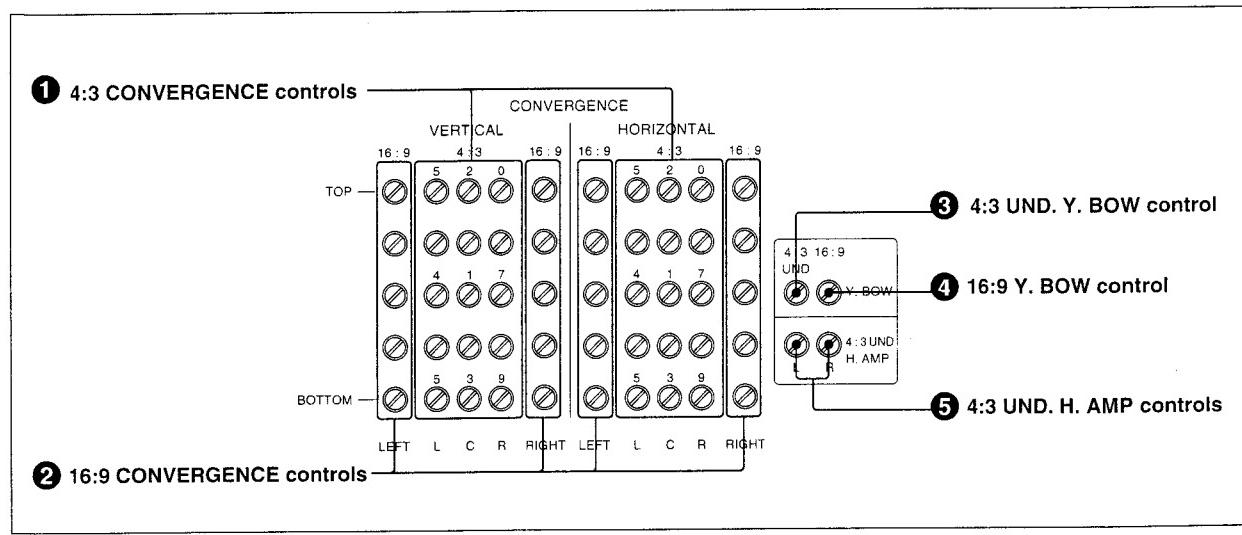
### **28 PIC SETUP (picture setup) button and lamp**

Use to match the black reference of the monitor with the black level of the input signal to be monitored.

By pressing this button so that the lamp lights, a vertical picture band and the black reference of the monitor are displayed on the screen for easy level comparison.

*See "1-6-2. Black Level Adjustment."*

## DC board (Convergence adjustment section)



DC board

### ① 4:3 CONVERGENCE controls

Adjust the convergence of the 4:3-aspect normal picture. The VERTICAL controls adjust the convergence vertically and the HORIZONTAL controls adjust it horizontally. Fifteen controls cover the entire screen so that each control adjusts the corresponding portion of the screen.

*See "1-5. Convergence Adjustments."*

### ② 16:9 CONVERGENCE controls

Adjust the convergence of the 16:9-aspect picture at the right and left portions of the screen after adjusting it at the center of the picture using the 4:3 CONVERGENCE controls.

The VERTICAL controls adjust the convergence vertically and the HORIZONTAL controls adjust it horizontally.

*See "1-5-3. Convergence of a 16:9-Aspect Picture."*

### ④ 16:9 Y. BOW control

Adjust the horizontal convergence at the top and bottom of the center of the 16:9-aspect picture. *See "1-5-3. Convergence of a 16:9-Aspect Picture."*

### ⑤ 4:3 UND. H. AMP (underscan horizontal amplifier) controls

Adjust the horizontal convergence of the underscanned picture of the 4:3-aspect.

*See "1-5-2. Convergence of a 4:3-Aspect Underscanned Picture."*

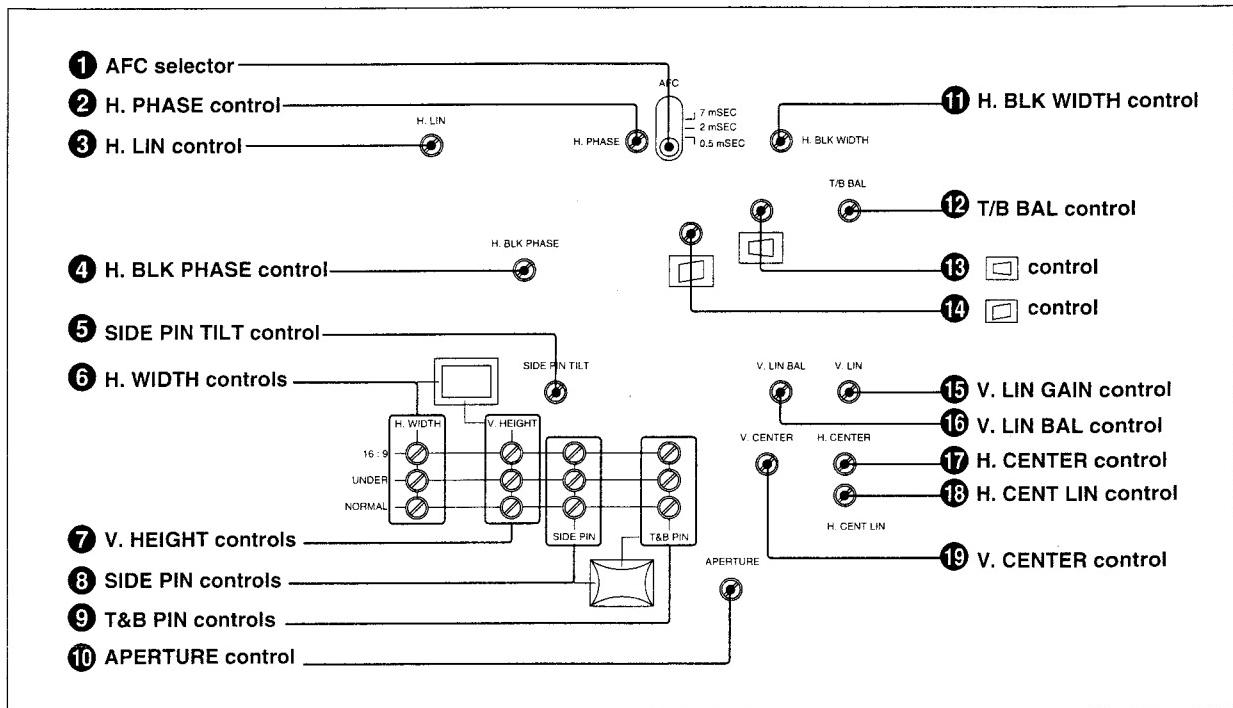
### ③ 4:3 UND. Y. BOW (underscan Y bow) control

Adjust the horizontal convergence at the top and bottom of the center of the 4:3-aspect underscanned picture.

*See "1-5-2. Convergence of a 4:3-Aspect Underscanned Picture."*

## Section 1 Operation

### DA board (H.V. oscillator section)



DA board

#### ① AFC (automatic frequency control) selector

Select the AFC time constant.

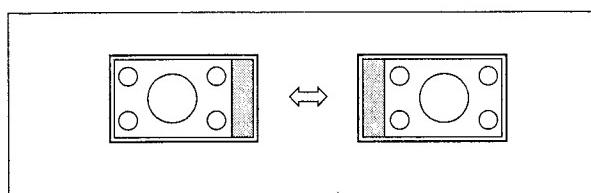
**0.5 mSEC (fast):** This mode is fast enough to compensate for VTR jitter. Set to this position to obtain a stable playback picture from a VTR.

**2 mSEC (normal):** Normally set to this position.

**7 mSEC (slow):** This mode is slow enough to display the time base instability introduced by mechanical jitter in the VTR playback signal.

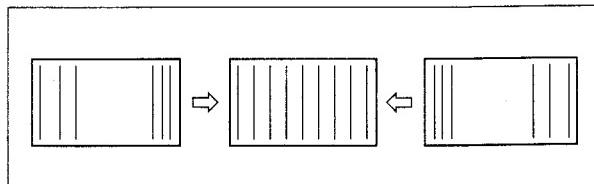
#### ② H. PHASE (horizontal phase) control

Adjust the horizontal position of the picture.



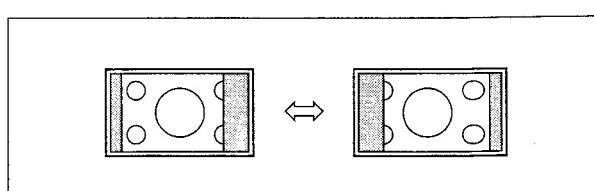
#### ③ H. LIN (horizontal linearity) control

Adjust the horizontal linearity of the picture.

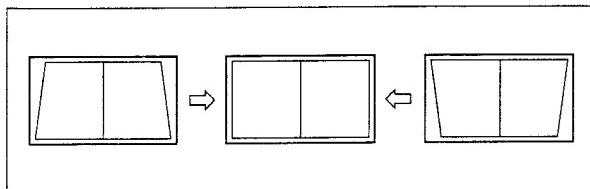


#### ④ H. BLK PHASE (horizontal blanking phase) control

Adjust the phase of the horizontal blanking at both sides of the screen.



**⑤ SIDE PIN TILT (side pincushion tilt) control**  
Adjust the phase of the side pincushion distortion.



**⑥ H. WIDTH (horizontal width) controls**  
Adjust the horizontal width of the picture. Use the NORMAL control for the 4:3-aspect normal picture, the UNDER control for the 4:3-aspect underscanned picture and the 16:9 control for the 16:9-aspect picture.

**⑦ V. HEIGHT (vertical height) controls**  
Adjust the height of the picture. Use the NORMAL control for the 4:3-aspect normal picture, the UNDER control for the 4:3-aspect underscanned picture and the 16:9 control for the 16:9-aspect picture.

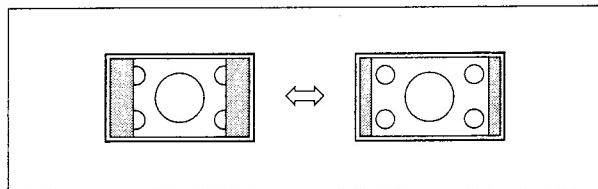
**⑧ SIDE PIN (pincushion) controls**  
Correct the side pincushion distortion. Use the NORMAL control for the 4:3-aspect normal picture, the UNDER control for the 4:3-aspect underscanned picture and the 16:9 control for the 16:9-aspect picture.

**⑨ T&B PIN (top and bottom pincushion distortion controls)**  
Correct the top and bottom pincushion distortion. Use the NORMAL control for the 4:3-aspect normal picture, the UNDER control for the 4:3-aspect underscanned picture and the 16:9 control for the 16:9-aspect picture.

**⑩ APERTURE control**  
Adjust the frequency response when the APERTURE switch on the front panel is depressed.

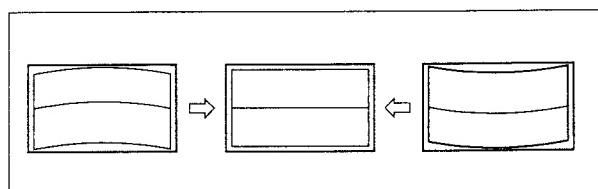
**⑪ H. BLK WIDTH (horizontal blanking width control)**

Adjust the width of the horizontal blanking.

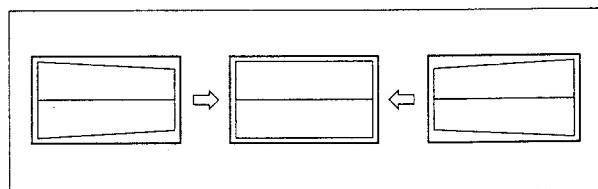


**⑫ T/B BAL (top and bottom pincushion balance) control**

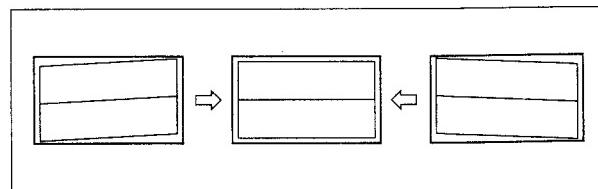
Adjust the distortion at the center (X axis) of the picture.



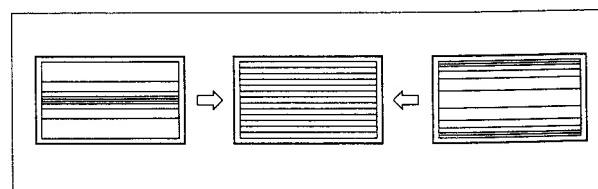
**⑬ □ (trapezoid distortion) control**  
Correct the horizontal trapezoid distortion.



**⑭ □ (parallelogram distortion) control**  
Correct the right angled distortion of the deflection yoke.



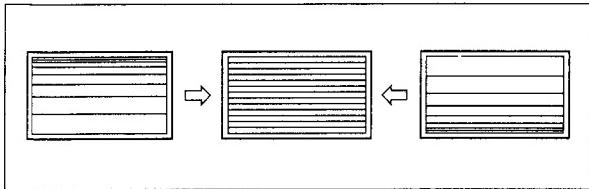
**⑮ V. LIN GAIN (vertical linearity gain) control**  
Adjust the vertical linearity of the picture.



## Section 1 Operation

### ⑯ V. LIN BAL (vertical linearity balance) control

Adjust the balance of the vertical (Y axis) linearity of the picture.

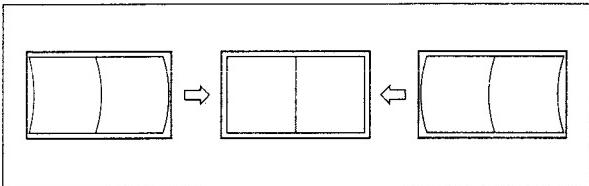


### ⑰ H. CENTER (horizontal centering) control

Adjust the horizontal position of the picture.

### ⑱ H. CENT LIN (horizontal centering linearity) control

Adjust the horizontal linearity at the center of the picture.



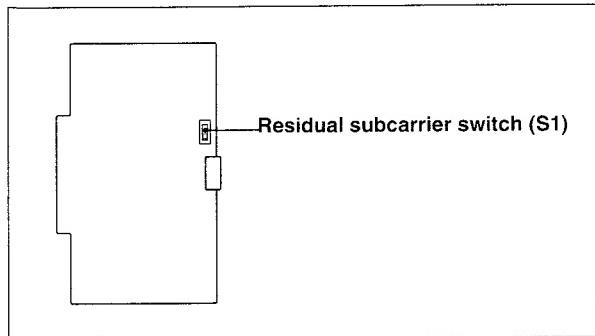
### ⑲ V. CENTER (vertical centering) control

Adjust the vertical position of the picture.

### 1-3-4. Switches inside the Cabinet

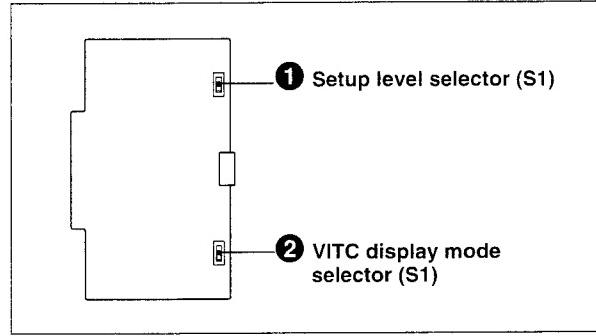
To access to the switches on the boards inside the cabinet, see Section 2.

**BJ board**



BJ board

**BH board**



BH board

#### Residual subcarrier switch (S1)

This switch is factory-preset to the lower position (OFF).

Normally there will be no residual subcarrier in input video signals. However, whether a residual subcarrier is preset, this may affect the display. Set this switch to the upper position (ON) to check if a residual subcarrier is present. If it is present in the incoming signal, color shift appears in the picture.

#### ① Setup level selector (S2)

Select the setup level.

**0 IRE:** The setup level is 0%.

**AUTO:** The setup level set through the COMPONENT OFFSET or NTSC OFFSET option of the MONITOR CONFIG menu is obtained.

*See "1-4-7. Defining the Monitor Configuration."*

**7.5 IRE:** The setup level is 7.5%.

The 0% setup levels can be varied with the RV1 control and 7.5% level with the RV2 control in a range from -2.5% through +12.5%.

#### ② VITC display mode selector (S1)

Use to invert the character and background colors for VITC display.

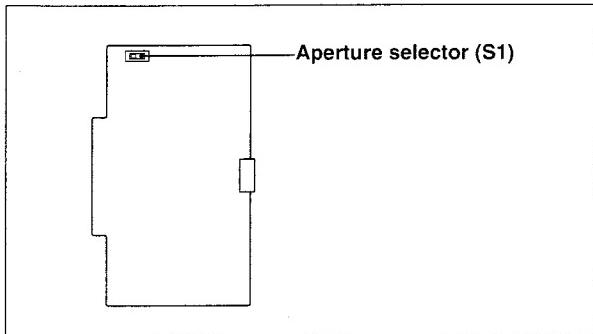
**Upper position:** Factory-preset position. The VITC is displayed in white characters on a black background.

**Lower position:** The VITC is displayed in black characters on a white background.

*For details, see the operation and maintenance manual of the BKM-1460 VITC adaptor.*

## Section 1 Operation

### BG board



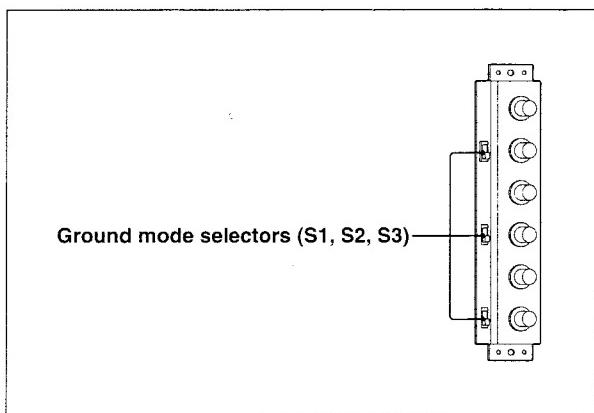
BG board

#### Aperture selector (S1)

Select the boost frequency, 4.5 MHz or 6.5 MHz, for aperture correction. This selector is factory-preset to 4.5 MHz.

### QA and QB boards

The QA board is located behind the VIDEO A, VIDEO B and EXT SYNC INPUT connector panel and the QB board is located behind the R/R-Y, G/Y/TEST and B/B-Y INPUT connector panel. To access these boards, remove the INPUT connector panels, referring to Section 2.



QA and QB boards

#### Ground mode selectors (S1, S2, S3)

The selectors on the QA board correspond to the VIDEO A, VIDEO B or EXT SYNC INPUT connectors and those on the QB board correspond to the R/R-Y, G/Y/TEST or B/B-Y connectors, respectively.

**S (nonfloating):** Factory-preset position.

Normally keep the selectors at this position.

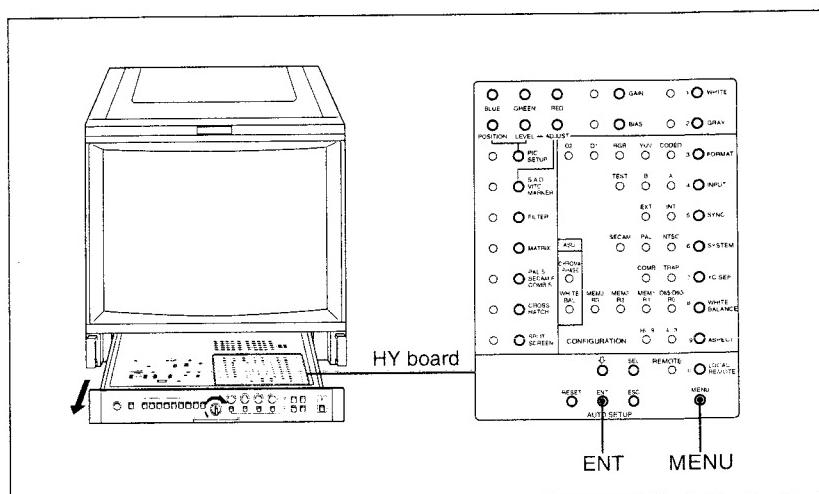
**F (floating):** When there is hum in the input signal to be monitored, set to this position. Common mode noise will be rejected.

## 1-4. Menu Operations

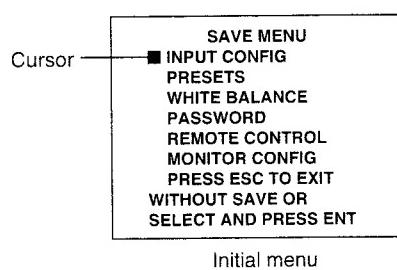
The menu operations permit the various monitor requirements to easily be set by following messages displayed on the screen.

### 1-4-1. Starting with the menu operations

For the menu operations, use the buttons on the HY board in the drawer and some switches and controls on the front panel.



Pressing the MENU button displays the following initial menu showing the items which can be set through the menu operations.



**INPUT CONFIG** (input configuration): To assign input signals to INPUT selectors 1 to 4 on the front panel.

**PRESETS**: To adjust the preset values for the phase, chroma, contrast, brightness, and picture setup (black reference) levels.

**WHITE BALANCE**: To adjust the white balance.

**PASSWORD**: To specify and activate/deactivate the password.

**REMOTE CONTROL**: To assign the remote control functions.

**MONITOR CONFIG** (monitor configuration): To specify operating conditions of the monitor, such as the optional boards to be used and signal setup levels, and to restore the factory-set menu data.

## Section 1 Operation

### To select a menu option

Move the cursor with the ↓ button to the line of the desired menu option and press the ENT button.  
Pressing the ↓ button moves the cursor downward and, if at the bottom, to the top.

### To cancel the menu operation on the way

Press the ESC button.

At any level of the menu operations, pressing the ESC button cancels the operations without changing any data and restores normal status.

### 1-4-2. Setting the Input Configuration

At the factory, the following input signals are assigned to INPUT selectors 1 to 4 on the front panel.

Factory-set configuration

| Signal               | INPUT selectors |          |           |       |
|----------------------|-----------------|----------|-----------|-------|
|                      | 1               | 2        | 3         | 4     |
| FORMAT               | CODED           | CODED    | COMPONENT | RGB   |
| INPUT                | A               | B        | —         | —     |
| SYNC                 | INT             | INT      | INT       | INT   |
| SYSTEM <sup>a)</sup> | NTSC/PAL        | NTSC/PAL | —         | —     |
| ASPECT               | 4 : 3           | 4 : 3    | 4 : 3     | 4 : 3 |
| YC SEP <sup>b)</sup> | COMB            | COMB     | —         | —     |

a) NTSC for the BVM-1911 and PAL for the BVM-2011P.

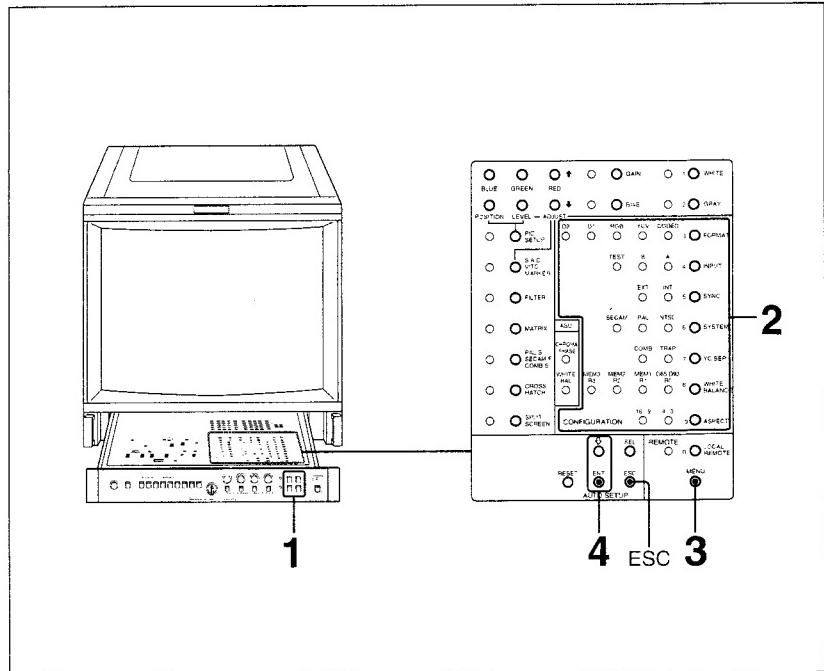
b) Only for BVM-1911. The INPUT selectors 1 and 2 on the BVM-2011P have been set to TRAP.

Using the CONFIGURATION buttons on the HY board in the drawer, these requirements of the input signals (input configuration) can be changed as desired and stored in memory through the INPUT CONFIG menu operation.

The stored configuration is always obtained when the assigned INPUT selector is pressed.

When the change is not stored through the menu operation, the input configuration returns to the previous status when another INPUT selector is pressed.

## Operation



- 1** Press one of the INPUT selectors on the front panel.
- 2** Using the following COFIGURATION buttons in the drawer, set the input configuration for the INPUT selector selected in step 1. Press the buttons so that the appropriate lamps light.
  - FORMAT:** Select the signal format (CODED, YUV, RGB, D-1 or D-2).
  - INPUT:** Select the input connector A, B or TEST when you select CODED for FORMAT, or A or B when you select D-1 or D-2 for FORMAT.
  - SYNC:** Select the sync mode (INT or EXT).
  - SYSTEM:** Select the color system (NTSC, PAL or SECAM) when you select CODED or D-2 for FORMAT.
  - YC SEP:** Select the filter when you select NTSC or PAL for the color system.
  - WHITE BALANCE:** Select the register (R0, R1, R2 or R3) on which the desired white balance has been stored.  
*See "1-4-4. Selecting the White Balance."*
  - ASPECT:** Select the picture aspect (4:3 or 16:9).
- 3** When the settings are completed, press the MENU button. The initial menu is displayed.

## Section 1 Operation

- 4** Should the cursor on the initial menu not be located at INPUT CONFIG, press the  $\downarrow$  button until it returns to INPUT CONFIG, and press the ENT button.

**Note**

If the message “PLEASE ENTER PASSWORD” is displayed, enter the password.

*See “1-4-5. Changing and Applying the Password.”*

The input configuration set in step 2 for the INPUT selector selected in step 1 is now stored in memory.

The message “DATA SAVED” is momentarily displayed and the monitor returns to normal status.

Repeat this procedure for the other INPUT selectors as desired.

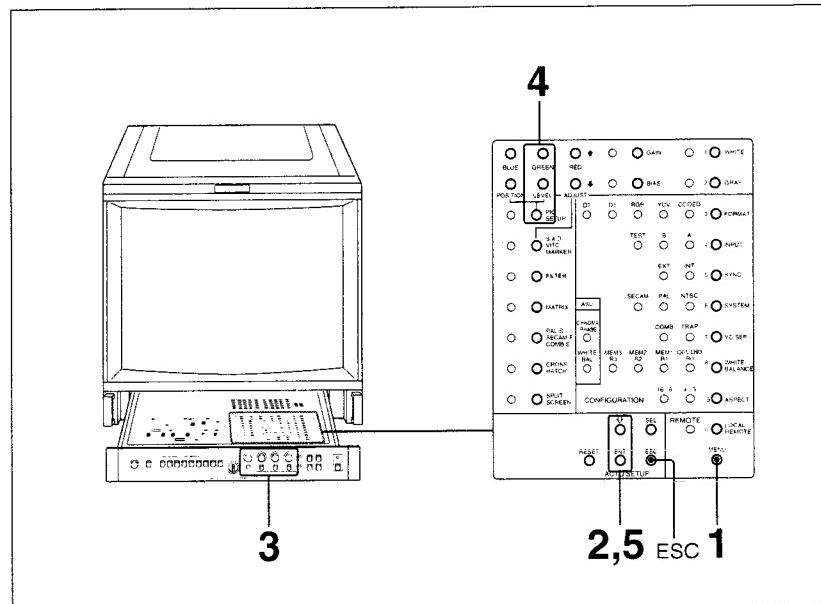
**To cancel the operation**

Press the ESC button before pressing the ENT button in step 4.

### 1-4-3. Presetting the Picture Levels

The four sets of the phase, chroma, brightness, contrast, and picture setup (black reference) levels can be set and stored in Registers R0 to R3 through the PRESETS menu operation.

#### Operation



- 1 Press the MENU button.  
The initial menu is displayed.
- 2 Press the ↓ button until the cursor reaches PRESETS, then press the ENT button.  
The SAVE PRESETS menu is displayed.

|                         |
|-------------------------|
| SAVE PRESETS            |
| ■ TEXT ON/OFF           |
| DATA REGISTER R0 *      |
| DATA REGISTER R1        |
| DATA REGISTER R2        |
| DATA REGISTER R3        |
| PHASE 100 BRIGHT 100    |
| CHROMA 100 CONTRAST 100 |
| PICTURE SETUP LEVEL 100 |
| SELECT AND PRESS ENT    |

An asterisk indicates the register which is currently selected with the WHITE BALANCE button. The levels stored in this register are displayed as numerical values on the lower half of the menu display.

#### Note

If the message "PLEASE ENTER PASSWORD" is displayed, enter the password.

See "1-4-5. Changing and Applying the Password."

## Section 1 Operation

- 3** Depress the PHASE, CHROMA, BRIGHTNESS and CONTRAST MANUAL switches and turn the respective controls so that the desired levels are obtained.
- 4** Press the PIC SETUP button so that the associated lamp lights and adjust the setup level for the picture by pressing the LEVEL buttons.

**Note**

The adjustments in steps 3 and 4 can be precisely performed while observing the numeric level indications (0 through 200, centering with 100) on the lower half of the menu display.

**To adjust while observing the picture on the screen**, set the cursor to TEXT ON/OFF and press the ENT button, and the SAVE PRESETS menu disappears.

For the picture setup level, follow the procedure in “1-6-2. Black Level Adjustment.”

To return to the SAVE PRESETS menu, press the ENT button again.

- 5** Move the cursor to the register in which the set levels are to be stored and press the ENT button.

The levels set in steps 3 and 4 are now stored in the register selected in step 5.

The message “DATA SAVED” is momentarily displayed, and the monitor returns to normal status.

Repeat this procedure for the other registers as desired.

**To cancel the operation**

Press the ESC button before pressing the ENT button in step 5.

---

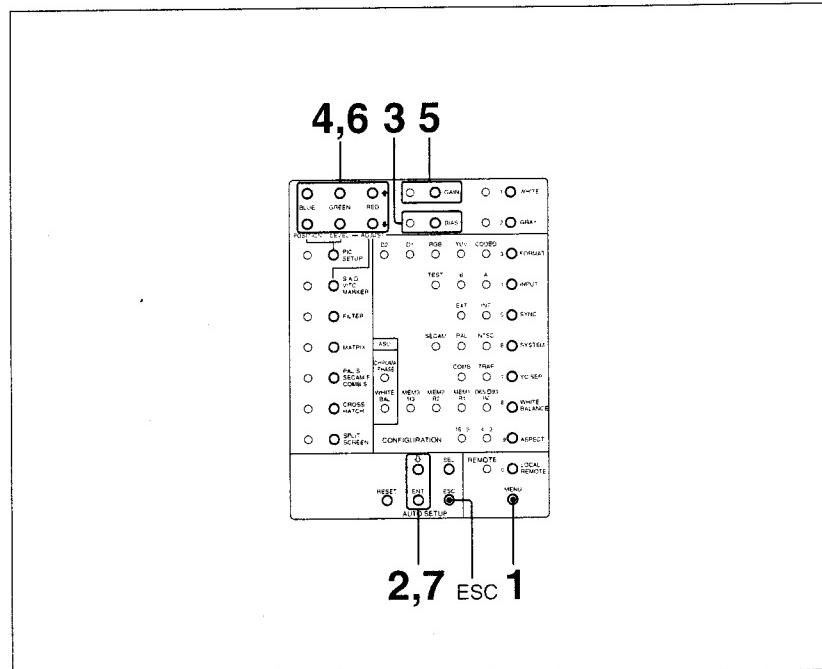
### 1-4-4. Selecting the White Balance

The four settings for white balance can be stored in Registers R0 to R3. At the factory, the setting for D6500 has been stored in all the registers

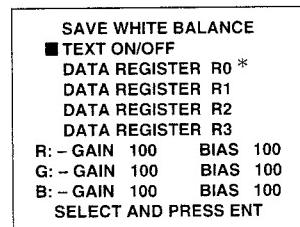
**Note**

The settings for white balance are stored in combination with the picture levels set through the PRESETS menu operation in the same Registers R0 through R3.

## Operation



- 1** Press the MENU button.  
The initial menu is displayed.
- 2** Press the ↓ button until the cursor reaches WHITE BALANCE, then press the ENT button.  
The SAVE WHITE BALANCE menu is displayed.



An asterisk indicates the register which is currently selected with the WHITE BALANCE button. The levels stored in this register are displayed as numerical values on the lower half of the menu display.

### Note

If the message "PLEASE ENTER PASSWORD" is displayed, enter the password.

*See "1-4-5. Changing and Applying the Password."*

## Section 1 Operation

- 3** Press the BIAS button.  
The associated lamp lights.
- 4** Adjust the R, G and B bias levels by pressing the RED, GREEN and BLUE buttons.
- 5** Press the GAIN button.  
The associated lamp lights.
- 6** Adjust the R, G and B signal gain levels by pressing the RED, GREEN and BLUE buttons.

**Note**

These adjustments in steps 3 through 6 can be precisely performed while observing the numeric level indications (0 through 200, centering with 100) on the lower half of the menu display.

**To adjust while observing the picture on the screen**, set the cursor to TEXT ON/OFF and press the ENT button, and the SAVE WHITE BALANCE menu disappears.

Then, adjust the white balance by following the procedure in "1-6-1. White Balance Adjustment."

To return to the SAVE WHITE BALANCE menu, press the ENT button again.

- 7** Move the cursor to the register in which the set white balance is to be stored and press the ENT button.

The white balance set in steps 3 through 6 is now stored in the register selected in step 7.

The message "DATA SAVED" is momentarily displayed, and the monitor returns to normal status.

Repeat the above procedure for the other registers as desired.

**To cancel the operation**

Press the ESC button before pressing the ENT button in step 7.

#### 1-4-5. Changing and Applying the Password

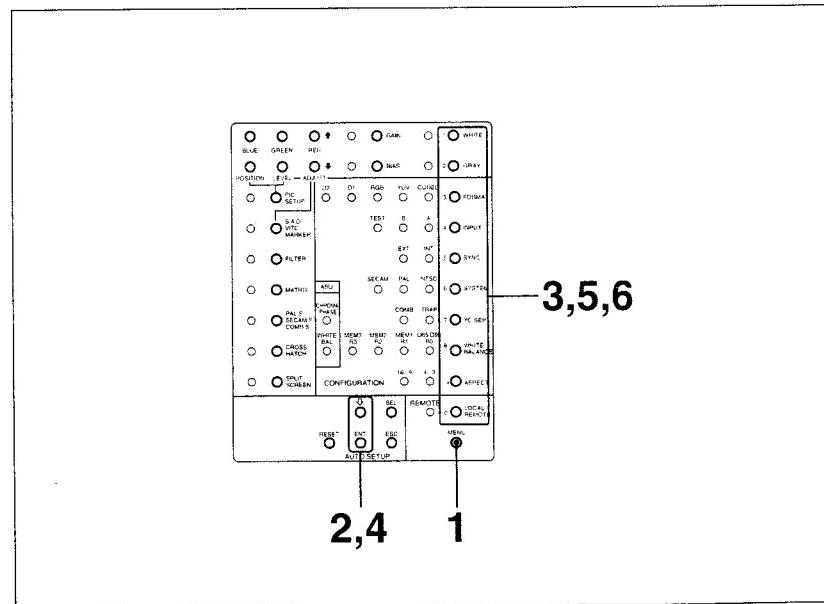
The password can be specified and applied to the desired menu option to prohibit the menu settings from being changed without permission. The password can be any desired four-digit number, which is entered by using the function buttons having additional numeric indications on the HY board.

The message "**PLEASE ENTER PASSWORD**" is displayed when you try to select the options for which the password has been applied, from the initial menu.

If an incorrect password is entered or the password is not entered within about 5 seconds after the above message is displayed, the message "**INCORRECT ENTRY**" is momentarily displayed and the menu operation is canceled.

##### To change the password

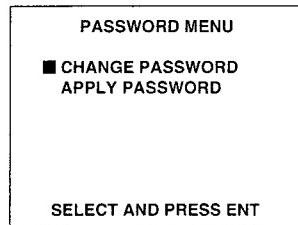
"9999" has been specified for the password at the factory. Change it to your desired four-digit number as follows.



- 1 Press the MENU button.  
The initial menu is displayed.

## Section 1 Operation

- 2 Press the ↓ button until the cursor reaches PASSWORD, then press the ENT button.  
The message “ENTER PASSWORD” is displayed.
- 3 Enter the current password (Factory-set: 9999).  
The PASSWORD MENU is displayed.



- 4 Select the CHANGE PASSWORD option.  
The message “ENTER NEW PASSWORD” is displayed.
- 5 Enter any desired four-digit number as your new password using the buttons labeled 0 to 9.  
The message “PLEASE RE-ENTER NEW PASSWORD TO CONFIRM” is displayed.
- 6 Enter the new password again.  
The message “PASSWORD CHANGED” is displayed and the new password is now valid.

**Note**

If an incorrect password is entered, “INCORRECT ENTRY. PASSWORD NOT CHANGED” is displayed and the menu operation is canceled.

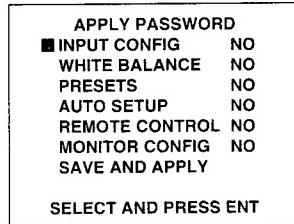
**To cancel the operation**

Press the ESC button before re-entering the new password in step 6.

## To apply the password

The specified password can be activated/deactivated independently for each of the initial menu options and, with the BKM-2056 installed, the auto setup option.

- 1** Perform steps 1 through 3 mentioned in “To change the password.”
- 2** By pressing the ↓ button and then ENT button, select the APPLY PASSWORD option.  
The APPLY PASSWORD menu is displayed.



NO is displayed for each option for which the password is not activated.

YES is displayed for each option for which the password is activated.

- 3** By pressing the ↓ button, move the cursor to the option for which the password application is to be changed.
- 4** Press the ENT button to change NO to YES or vice versa.  
(Pressing the button toggles the YES/NO setting.)

Repeat steps 3 and 4 for the other options as desired.

- 5** When the password application setting is completed, move the cursor to SAVE AND APPLY and press the ENT button.  
The message “PASSWORD APPLIED” is momentarily displayed, and the monitor returns to normal status.

## To cancel the operation

Press the ESC button before pressing the ENT button in step 5.

## Section 1 Operation

### 1-4-6. Assigning the Remote Control Functions

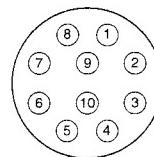
The remote control function is available either in STANDARD PARALLEL or CONFIGURE PARALLEL mode.

The mode change is achieved through the REMOTE CONTROL menu operation.

The SERIAL REMOTE option mode in the REMOTE CONTROL menu is provided for future use. If you inadvertently select it, cancel the REMOTE CONTROL menu by pressing the ESC button.

#### STANDARD PARALLEL mode

The remote control function is set to the STANDARD PARALLEL mode and the following functions are assigned to the pins of the REMOTE connector at the factory.



Pin assignment

| Function  |      |      | Pin No. |   |   |   |   |   |   |  |
|-----------|------|------|---------|---|---|---|---|---|---|--|
| INPUT     | SYNC | MODE | 1       | 2 | 3 | 4 | 5 | 6 | 7 |  |
| INPUT 1   | INT  | AUTO | O       | O | - | O | S | - | - |  |
|           |      | MONO | S       | O | - | O | S | - | - |  |
|           | EXT  | AUTO | O       | O | - | S | S | - | - |  |
|           |      | MONO | S       | O | - | S | S | - | - |  |
| INPUT 2   | INT  | AUTO | O       | S | - | O | S | - | - |  |
|           |      | MONO | S       | S | - | O | S | - | - |  |
|           | EXT  | AUTO | O       | S | - | S | S | - | - |  |
|           |      | MONO | S       | S | - | S | S | - | - |  |
| VITC OFF  |      |      | -       | - | - | - | - | S | - |  |
| VITC HOLD |      |      | -       | - | - | - | - | O | S |  |
| TALLY ON  |      |      | -       | - | S | - | - | - | - |  |

S: Short-circuit with pin No.8

O: Open

-: Either S or O

The assigned function can be controlled by short-circuiting the corresponding pin with pin 8.

Note that pin 3 is fixed to TALLY and pin 8 is fixed to GND.

The remote control operations have priority over the respective buttons and switches of the monitor.

## CONFIGURE PARALLEL mode

The functions of the buttons or switches on the front panel or in the drawer listed below can be assigned to pins 1, 2 and 4 through 7, as desired.

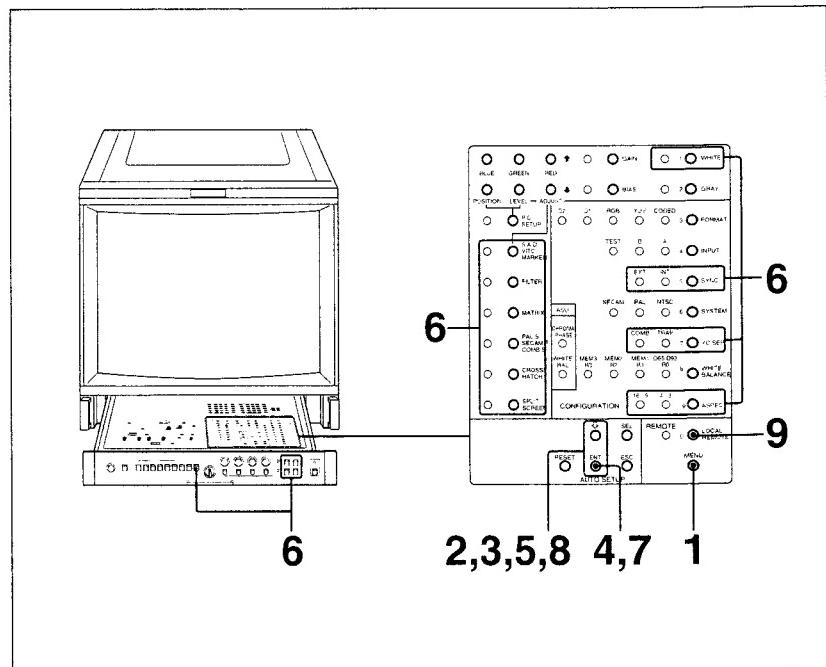
### Front panel

INPUT selectors 2 to 4 (input selection)  
MONO MODE switch (AUTO/MONO mode switching)

### HY board inside the drawer

WHITE button (ON/OFF)  
SYNC button (INT/EXT sync mode switching)  
YC SEP button (COMB/TRAP filter switching)  
ASPECT button (16:9/4:3 picture aspect switching)  
S.A.D / VITC/MARKER button (S.A.D. or VITC ON/OFF)  
FILTER button (ON/OFF)  
MATRIX button (ON/OFF)  
PAL S/SECAM F/COMB S button (mode or type switching)  
CROSSHATCH button (ON/OFF)  
SPLIT SCREEN button (ON/OFF)

### Operation

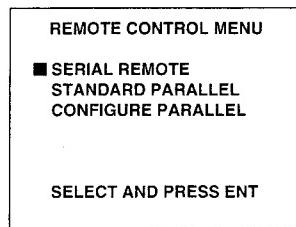


- 1 Press the MENU button to display the initial menu.

## Section 1 Operation

- 2** Move the cursor to REMOTE CONTROL and press the ENT button.

The REMOTE CONTROL MENU is displayed.

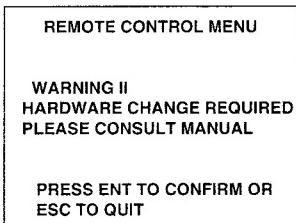


Note that SERIAL REMOTE is for future use.

- 3** To change the pin assignment of the REMOTE connector, move the cursor to CONFIGURE PARALLEL and press the ENT button.

To resume the factory-set pin assignment, move the cursor to STANDARD PARALLEL and press the ENT button. (For the factory-set pin assignment, see page 1-34.)

The following display appears.

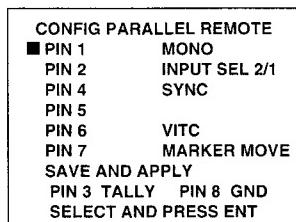


### Hardware Change

When using STANDARD PARALLEL or CONFIGURE PARALLEL mode, the 8-pin connector must be connected to HY-4 of the HY board in the drawer. Although it must have been done at the factory, make sure that the connector is connected to HY-4 properly. If not, remove the connector from HY-2 and connect it to HY-4.

- 4** Press the ENT button again to confirm the mode change in step 3. When STANDARD PARALLEL has been selected in step 3, the selected mode is now activated and the monitor returns to normal status.

When CONFIGURE PARALLEL has been selected, the CONFIG PARALLEL REMOTE menu is displayed.



- 5** Move the cursor with the ↓ button to the pin whose assignment is to be changed, then press the ENT button.  
The following message appears.



- 6** Press the button on the front panel or in the drawer (listed on page 1-35) whose function is to be assigned to the pin selected in step 5.
- 7** Press the ENT button.
- Repeat steps 5, 6 and 7 for the other pins as desired.
- 8** When the pin assignment is completed, move the cursor to SAVE AND APPLY and press the ENT button.  
The message “DATA SAVED” is momentarily displayed, and the monitor returns to normal status.
- 9** Press the LOCAL/REMOTE button to set the monitor to the remote control mode.

#### To cancel the operation

Press the ESC button before pressing the ENT button in step 8.

#### Notes

- When the INPUT selector 2, 3 or 4 is assigned to one of the REMOTE connector pins through CONFIGURE PARALLEL, the input signal for the assigned INPUT selector is selected by short-circuiting the pin to GND. In open status, the input signal of the INPUT selector 1 is selected.
- When two or more INPUT selectors are assigned to the REMOTE connector pins, be sure not to simultaneously short-circuit these pins to GND.

## Section 1 Operation

### 1-4-7. Defining the Monitor Configuration

In MONITOR CONFIG menu operation, the following operating conditions of the monitor can be defined.

**OPTION INSTALLATION:** To specify the installed optional boards.

**D1 CONFIGURATION:** To specify the system in which D-1 signals are to be received.

**COMPONENT OFFSET:** To set the setup level for component signals

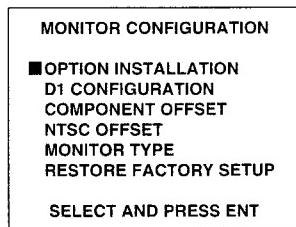
**NTSC OFFSET:** To set the setup level for NTSC signals.

**MONITOR TYPE:** To define the model of your monitor.

In addition, all the menu options you changed can be reset to the factory-set conditions using the **RESTORE FACTORY SETUP** option.

#### To start with the MONITOR CONFIG menu operation

- 1 Press the MENU button to display the initial menu.
- 2 Press the ↓ button until the cursor reaches MONITOR CONFIG, then press the ENT button.  
The MONITOR CONFIGURATION menu is displayed.



## To specify the installed optional boards

- 1 Set the cursor to OPTION INSTALLATION on the MONITOR CONFIGURATION menu and press the ENT button.  
The OPTION INSTALLATION menu 1 is displayed.

| OPTION INSTALLATION 1 |     |
|-----------------------|-----|
| AUTO SETUP            | YES |
| D1 OPTION             | YES |
| D2 OPTION             | YES |
| NTSC DECODER          | YES |
| NTSC COMB ADP         | YES |
| PAL DECODER           | YES |
| PAL COMB ADP          | YES |
| OTHER OPTIONS         |     |
| SELECT AND PRESS ENT  |     |

- 2 By pressing the ↓ button, move the cursor to the board for which the YES/NO setting must be changed, and press the ENT button. YES must be displayed for the installed board and NO for uninstalled boards. Pressing the ENT button toggles the YES/NO setting.

Repeat step 2 for the other boards as necessary.

- 3 Move the cursor to OTHER OPTIONS and press the ENT button.  
The OPTION INSTALLATION menu 2 is displayed.

| OPTION INSTALLATION 2 |     |
|-----------------------|-----|
| PAL-M DECODER         | YES |
| SECAM DECODER         | YES |
| RGB/COMP O/P          | YES |
| VITC BOARD            | YES |
| SAFE AREA             | YES |
| BLACK GENER           | YES |
| OTHER OPTIONS         |     |
| SAVE AND APPLY        |     |
| SELECT AND PRESS ENT  |     |

- 4 Set YES/NO for the boards listed in menu 2 in the same manner as with menu 1.
- 5 When the YES/NO setting is completed, move the cursor to SAVE AND APPLY and press the ENT button.  
The message "DATA SAVED" is momentarily displayed and the monitor returns to normal status.

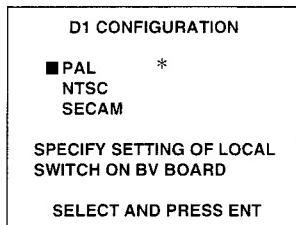
## Section 1 Operation

### To specify the system in which D-1 signals are to be received

Before starting the following procedure, set D1 OPTION of the above OPTION INSTALLATION menu 1 to YES.

- Move the cursor with the ↓ button to D1 CONFIGURATION on the MONITOR CONFIGURATION menu and press the ENT button.

The D1 CONFIGURATION menu is displayed.

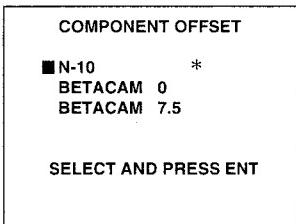


The asterisk indicates the current setting.

- Move the cursor with the ↓ button to the system matching setting of the local switch on the BV board.
- Press the ENT button.  
The message “DATA SAVED” is momentarily displayed and the monitor returns to normal status.

### To set the setup level for component signals

- Move the cursor with the ↓ button to COMPONENT OFFSET on the MONITOR CONFIGURATION menu and press the ENT button.  
The COMPONENT OFFSET menu is displayed.



The asterisk indicates the current setting.

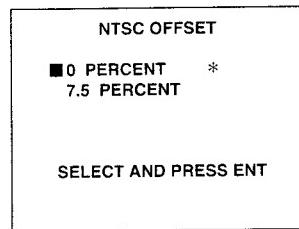
- Move the cursor with the ↓ button to the appropriate setup level.  
**N-10:** When supplying the 100/0/100/0 component signals.  
**BETACAM 0:** When supplying the 100/0/75/0 component signals.  
**BETACAM 7.5:** When supplying the 100/7.5/75/7.5 component signals.

- 3** Press the ENT button.

The message “DATA SAVED” is momentarily displayed and the monitor returns to normal status.

#### To set the setup level of NTSC signals

- 1** Move the cursor with the ↓ button to NTSC OFFSET on the MONITOR CONFIGURATION menu and press the ENT button. The NTSC OFFSET menu is displayed.



The asterisk indicates the current setting.

- 2** Move the cursor with the ↓ button to the appropriate setup level.

**0 PERCENT:** When supplying 0 IRE NTSC signals.

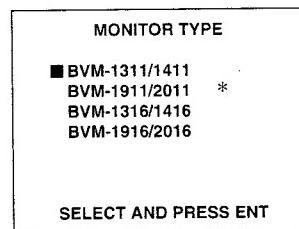
**7.5 PERCENT:** When supplying the 7.5 IRE NTSC signals.

- 3** Press the ENT button.

The message “DATA SAVED” is momentarily displayed and the monitor returns to normal status.

#### To define the model of your monitor

- 1** Move the cursor with the ↓ button to MONITOR TYPE on the MONITOR CONFIGURATION menu and press the ENT button. The MONITOR TYPE menu is displayed.



The asterisk indicates the current setting.

- 2** Move the cursor with the ↓ button to the model name of your monitor.

- 3** Press the ENT button.

The message “DATA SAVED” is momentarily displayed and the monitor return to normal status.

## Section 1 Operation

### To restore the factory setup

- 1** Move the cursor with the ↓ button to RESTORE FACTORY SETUP in the MONITOR CONFIGURATION menu and press the ENT button.  
The following message is displayed.



- 2** Press the ENT button.  
All the changed menu options returns to the factory-set conditions.

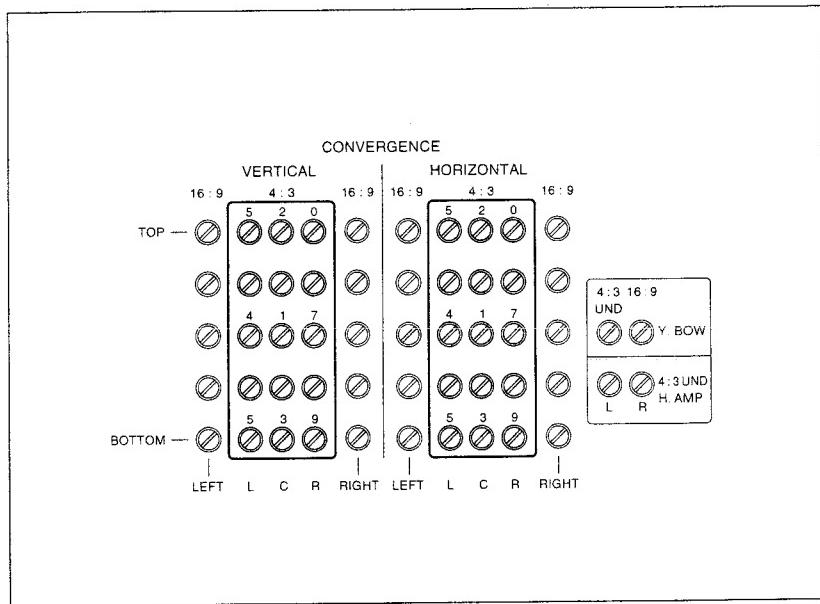
To cancel the restoration, press the ESC button before pressing the ENT button in step 2.

## 1-5. Convergence Adjustments

For the convergence adjustment, use the CONVERGENCE controls on the DC board inside the drawer. Use the supplied screwdriver to turn these controls.

### 1-5-1. Convergence of a 4:3-Aspect Normal Picture

Adjust the convergence of 4:3 scan mode using the 4:3 controls.

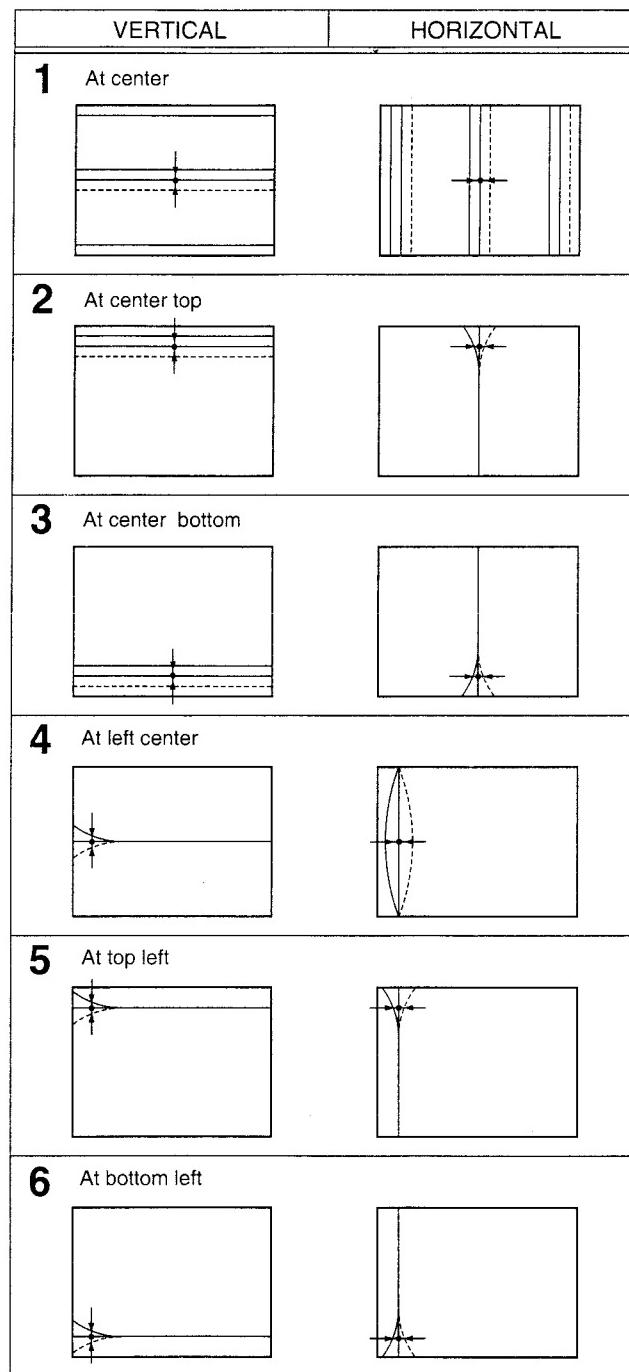


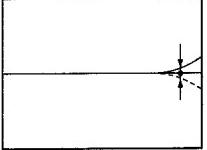
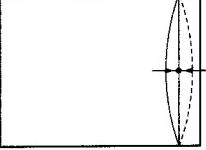
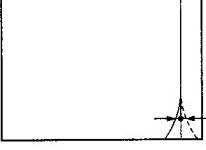
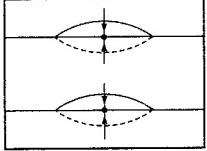
DC board

- Numbers 1 to 9 in the illustration above refer to the sequence of operations.
- The HORIZONTAL controls adjust the convergence horizontally, and the VERTICAL controls adjust it vertically.
- When adjusting the convergence, observe the portion of the screen indicated by arrows in the figures on the subsequent pages. The red and blue beams move symmetrically to the green beam.

## Section 1 Operation

Adjust the convergence at the corresponding portion of the screen, as follows.

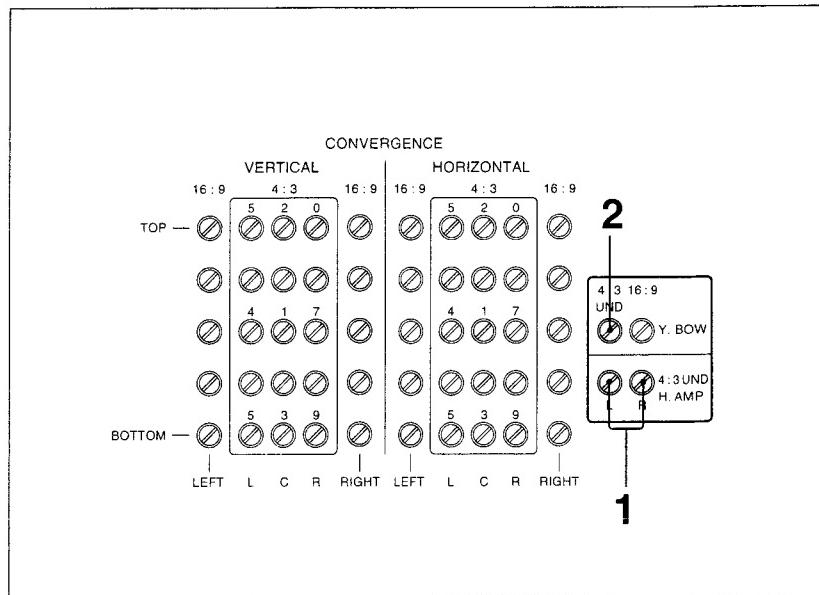


| VERTICAL  | HORIZONTAL  |
|---|---|
| <b>7</b><br>At right center   |    |
| <b>8</b><br>At top right  |   |
| <b>9</b><br>At bottom right   |  |
| <b>10</b><br>Adjust the convergence between the center and top and between the center and bottom on the screen as required. |  |

## Section 1 Operation

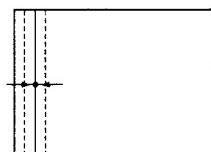
### 1-5-2. Convergence of a 4:3-Aspect Underscanned Picture

Adjust the convergence of 4:3 underscan mode using the 4:3 UND H. AMP and 4:3 UND Y. BOW controls after the convergence adjustment of normal scan mode is completed.

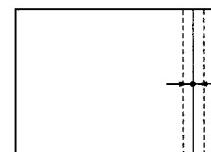


- 1** Adjust the horizontal convergence with the 4:3 UND. H. AMP controls.

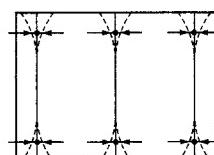
L (left)



R (right)

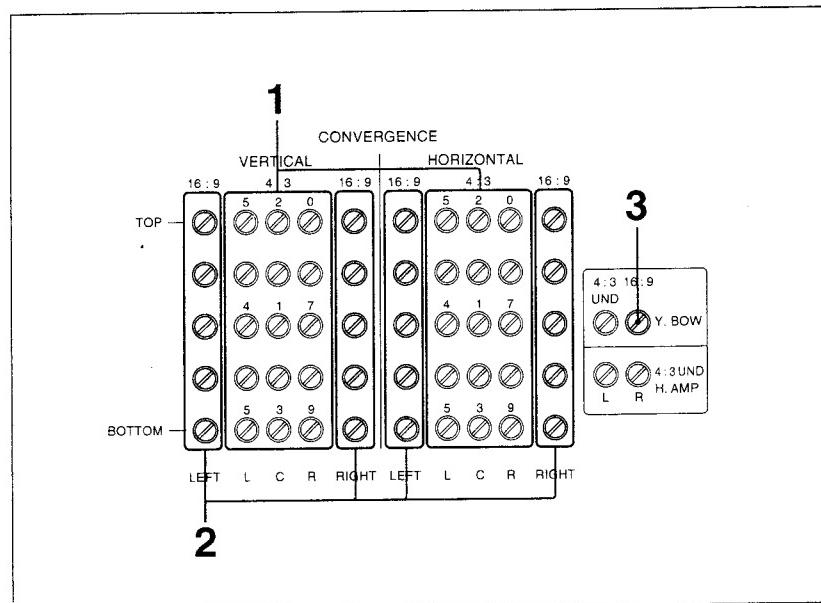


- 2** Adjust the horizontal convergence at the corners of the picture with the 4:3 UND. Y. BOW control.



### 1-5-3. Convergence of a 16:9-Aspect Picture

Adjust the convergence of 16:9 scan mode.



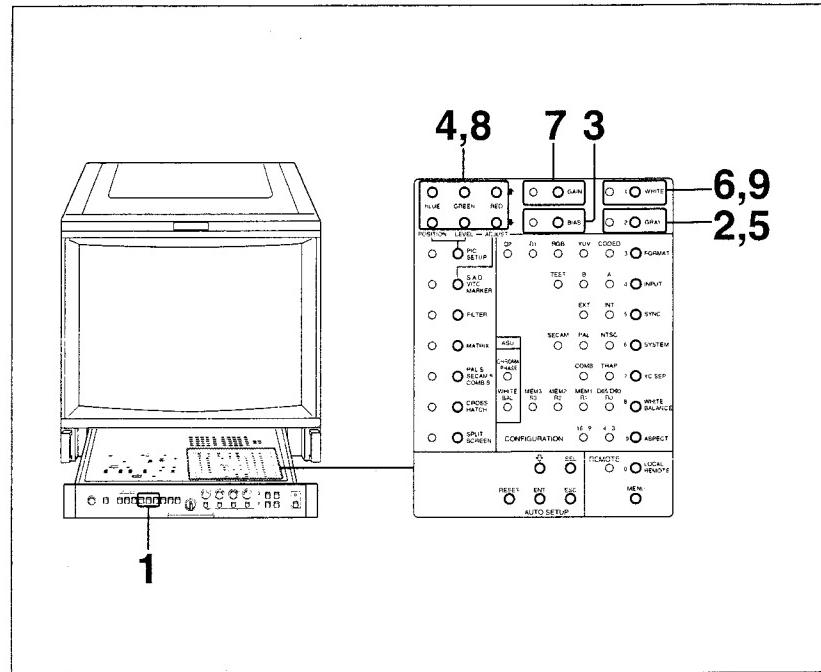
- 1** Adjust the convergence at the center of the screen following the procedure mentioned in "1-5-1. Convergence of a 4:3-aspect normal picture."
- 2** Adjust the convergence at the right and left portions of the screen using the 16:9 controls.
- 3** Adjust the horizontal convergence at the corners using the 16:9 Y. BOW control.

## Section 1 Operation

### 1-6. Picture Adjustments

#### 1-6-1. White Balance Adjustment

During the adjustment, turn the red green and blue beams on and off with the SCREEN switches on the front panel as required.



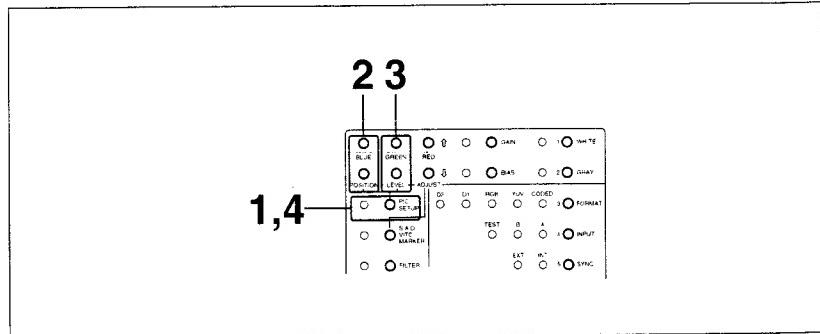
- 1** Display a test signal on the screen.
- 2** Press the GRAY button.  
The associated lamp lights and the internal gray signal is displayed on the screen.
- 3** Press the BIAS button.  
The associated lamp lights.
- 4** Adjust the white balance at the lowlight by pressing the BLUE, GREEN and RED buttons ↑ or ↓.
- 5** Press the GRAY button again.  
The associated lamp goes off and the internal gray signal disappears.
- 6** Press the WHITE button.  
The associated lamp lights and the internal 100% white signal is displayed on the screen

- 7** Press the GAIN button.  
The associated lamp lights.
- 8** Adjust the white balance at the highlight by pressing the BLUE, GREEN and RED buttons  $\uparrow$  or  $\downarrow$ .
- 9** When the adjustment is completed, press the WHITE button so that the lamp goes off and the white signal disappears.

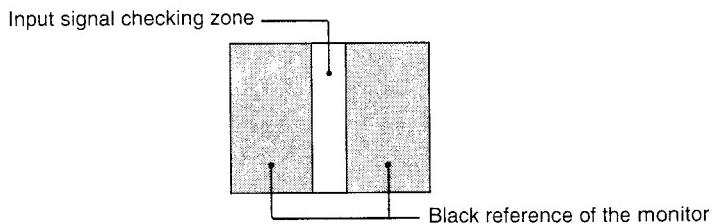
*For white balance adjustment using a color analyzer or equivalent, see Section 2.*

### 1-6-2. Black Level Adjustment

Match the black reference of the monitor with the black level of the input signal to be monitored.



- 1** Press the PIC SETUP button.  
The associated lamp lights and a vertical picture band and the black reference of the monitor are displayed on the screen.



- 2** Press the POSITION buttons  $\uparrow$  or  $\downarrow$  to move the position of the picture band horizontally so that the black signal of the picture is located next to the black reference area.
- 3** Press the LEVEL buttons  $\uparrow$  or  $\downarrow$  to match the brightness of the black reference area with that of the input black signal.
- 4** Press the PIC SETUP button again.

## Section 1 Operation

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### 1-7. Specifications

#### General

System

BVM-1911: 525 lines per picture, 60 fields per second interlaced, NTSC

BVM-2011P: 625 lines per picture, 50 fields per second interlaced, PAL

CRT

Super Fine Pitch Trinitron 0.3 mm aperture grille, 90-degree deflection, 36 mm dia. in-line gun

Effective picture size:

291 × 384 mm (h/w) (11<sup>1</sup>/<sub>2</sub> × 15<sup>1</sup>/<sub>8</sub> inches)

482 mm (19 inch) picture measured diagonally

Picture tube protection

EHT (Extremely High Tension) is shut off in the event of scan failure.

Warm up

30 minutes to meet specifications

Anode voltage

Properly adjusted HV 27 kV at zero beam current

Power consumption

Typical: 145 W

Maximum: 185 W

Power requirements

BVM-1911: 100-120 V AC ±10%, 50/60 Hz

BVM-2011P: 220-240 V AC ±10%, 50/60 Hz

Dimensions

448 × 455 × 584 mm (w/h/d)

(17<sup>3</sup>/<sub>4</sub> × 18 × 23 inches)

including projecting parts and controls

Mass

43 kg (94 lb 13 oz)

#### Inputs/outputs

Video inputs

BNC type (5 inputs with 5 loop-through outputs)

VIDEO A/B, TEST, R/G/B:

0.714 Vp-p noncomposite or 1 Vp-p composite ±6 dB positive, high-impedance

Y: Composite, 1.0 Vp-p ±6 dB, high-impedance

R-Y/B-Y: 0.7 Vp-p ±6 dB, high-impedance

EXT SYNC: BNC type (1 input with 1 loop-through output)

1 to 8 Vp-p negative, high-impedance

More than 46 dB (7 MHz with 75-ohm termination)

Sync input

Reduced by more than 50 dB

Input return loss

Maximum hum: Less than 4 Vrms, where hum is applied to the monitor in floating ground mode

Hum rejection

|   |  |
|---|--|
| Video outputs                                 | DECODER OUT: BNC type (3)<br>Output decoded signals only when BKM-1440 is installed.   |
| Remote control                                | REMOTE: 10-pin connector (1)   |
| Probe receptacle                              | AUTO SETUP PROBE: 12-pin connector (1)   |
| <b>Video signal</b>                           |  |
| Luminance channel (RGB and composite signals) |  |
| Differential gain                             | Within 2% for a luminance from 0 to 103 cd/m <sup>2</sup>  |
| Differential phase                            | Within 2° for a luminance from 0 to 103 cd/m <sup>2</sup>  |
| Frequency response                            | Monochrome mode: 100 Hz to 8 MHz ±1 dB<br>(aperture correction at 0)<br>Color mode: Trap or comb filter removes frequency in 3.58 MHz region (BVM-1911) or 4.43 MHz (BVM-2011P) region<br>RGB mode: 100 Hz to 10 MHz ±1 dB |
| Chrominance channel                           |  |
| Demodulation axis                             | R-Y, B-Y   |
| Bandpass                                      | 1.3 MHz equiband   |
| Subcarrier regeneration                       | ±1° (standard input signal)  |
| Phase control range                           | More than ±15° (standard input signal)   |
| Chroma gain control range                     | More than ±6 dB  |
| Chrominance/luminance                         |  |
| Time error                                    | Less than 30 nsec  |
| Gain error                                    | Less than 5%   |
| Aperture correction                           | Adjustable continuously up to 6 dB boost at 4.5 MHz or 6.5 MHz (selectable)  |
| DC restoration (RGB and composite signals)    |  |
| Back porch type                               |  |
| Back porch level:                             | Within 1% of peak luminance, 10% to 90% (average picture level)  |
| <b>Synchronization</b>                        |  |
| AFC time constant                             | 0.5 msec (fast), 2 msec (normal) or 7 msec (slow)  |
| Line pull range/line hold range               | More than ±500 Hz at 0.5 msec time constant  |
| Vertical blanking time                        | Normal: Within 1 msec.<br>Underscan: Within 0.8 msec.  |
| Horizontal retrace time                       | Within 10 µsec   |

## Section 1 Operation

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### Picture performance

|                                  |  |
|----------------------------------|--|
| Normal scan                      | 5% overscan of CRT effective screen area<br>(adjustable range more than $\pm 15\%$ )   |
| Underscan                        | 3% underscan of CRT effective screen area<br>(adjustable range more than $\pm 15\%$ )  |
| Linearity                        | Within a central area bounded by a circle<br>whose diameter equals the picture height,<br>within 0.5% of the picture height, out of area<br>1% |
| Color temperature                | D6500, adjustable to other color<br>temperatures   |
| Nominal chromaticity coordinates | BVM-1911: SMPTE C phosphor   |

|       | x     | y     |
|-------|-------|-------|
| Red   | 0.630 | 0.340 |
| Green | 0.310 | 0.595 |
| Blue  | 0.155 | 0.070 |

BVM-2011P: EBU standard phosphor

|       | x    | y    |
|-------|------|------|
| Red   | 0.64 | 0.33 |
| Green | 0.29 | 0.60 |
| Blue  | 0.15 | 0.06 |

|                       |   |
|-----------------------|---|
| Convergence error     | Error: Less than $\pm 0.005$<br>Central area: Less than 0.4 mm<br>Periphery: Less than 0.7 mm |
| Calibrated constant   | 103 cd/m <sup>2</sup> at peak white of standard 1 Vp-p signal                                 |
| Raster size stability | Less than 1% picture height, 0% to 100% APL at 103 cd/m <sup>2</sup> peak luminance           |
| Scan delay            | Horizontal: Approx. $\frac{1}{4}$ line<br>Vertical: Approx. $\frac{1}{2}$ field               |
| Resolution            | More than 900 TV lines (center, at 103 cd/m <sup>2</sup> luminance)                           |

### Environment

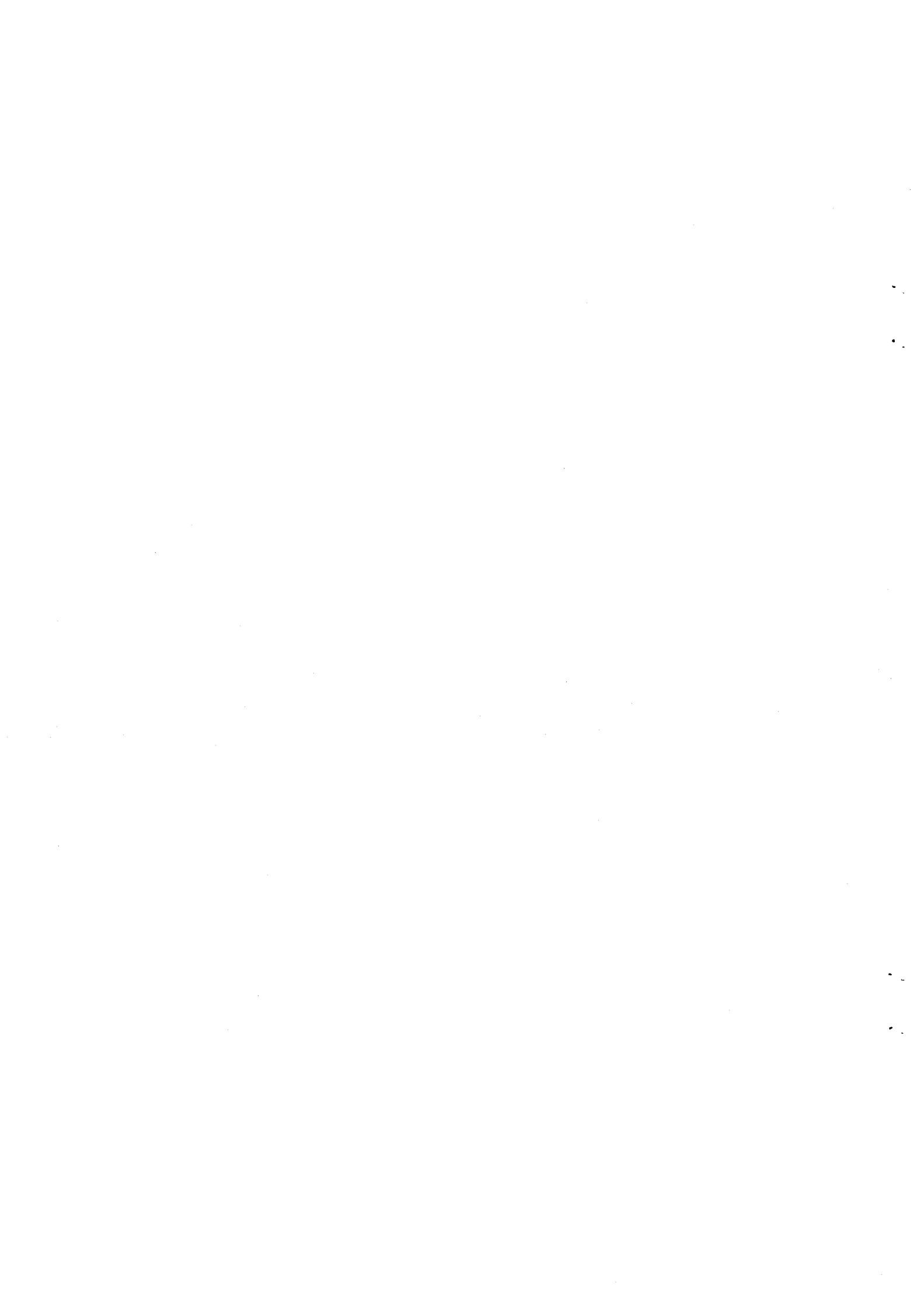
|                           |                                    |
|---------------------------|------------------------------------|
| Operating temperature     | 0° C to 40° C (32° F to 104° F)    |
| Optimum temperature range | 20° C to 30° C (68° F to 86° F)    |
| Humidity                  | 0 to 90%                           |
| Altitude                  | Approx. 3,050 m (10,000 feet) max. |

### **Supplied accessories**

- AC power cord (1)
- Cord stopper (1)
- Screwdriver (1)
- Drawer keys (2)
- Extension board (1)
- 10-pin connector (1)
- Fuses (2)
- Tally number plates (1 set)
- Operation and maintenance manual (1)

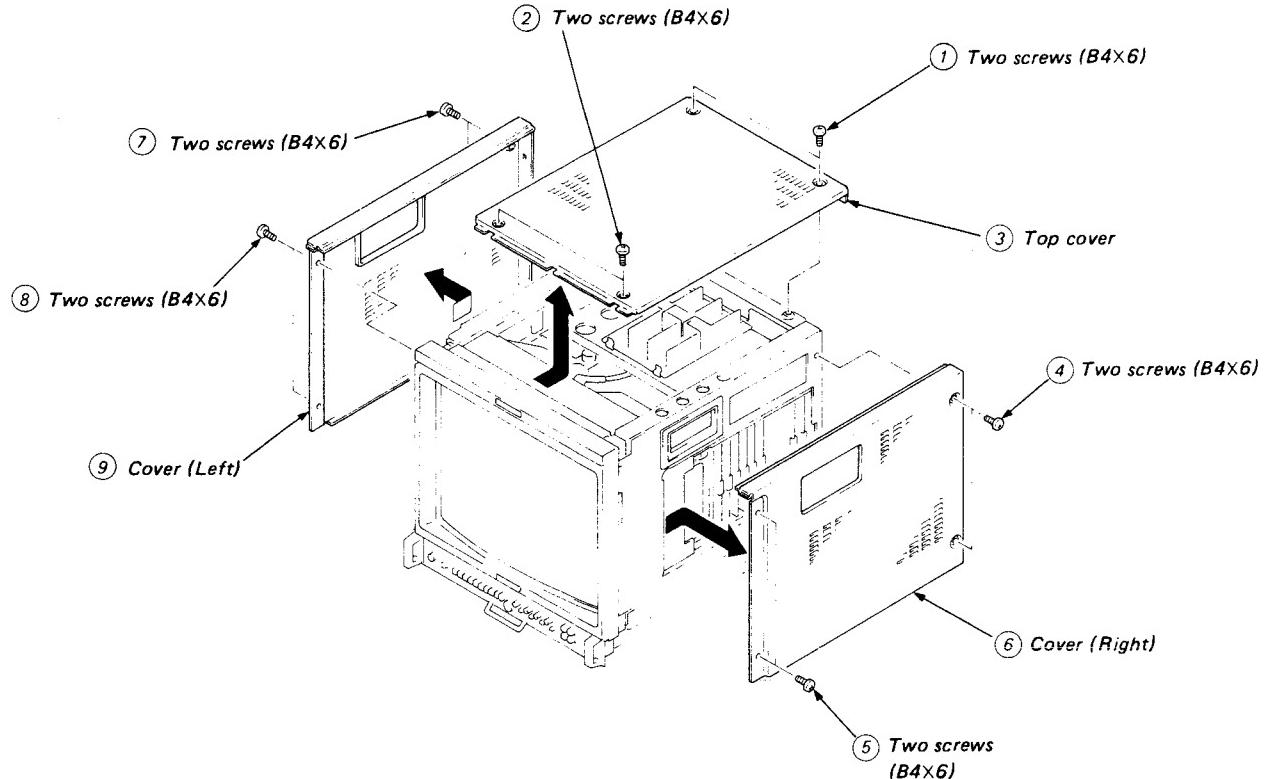
Design and specifications are subject to change without notice.

(2)

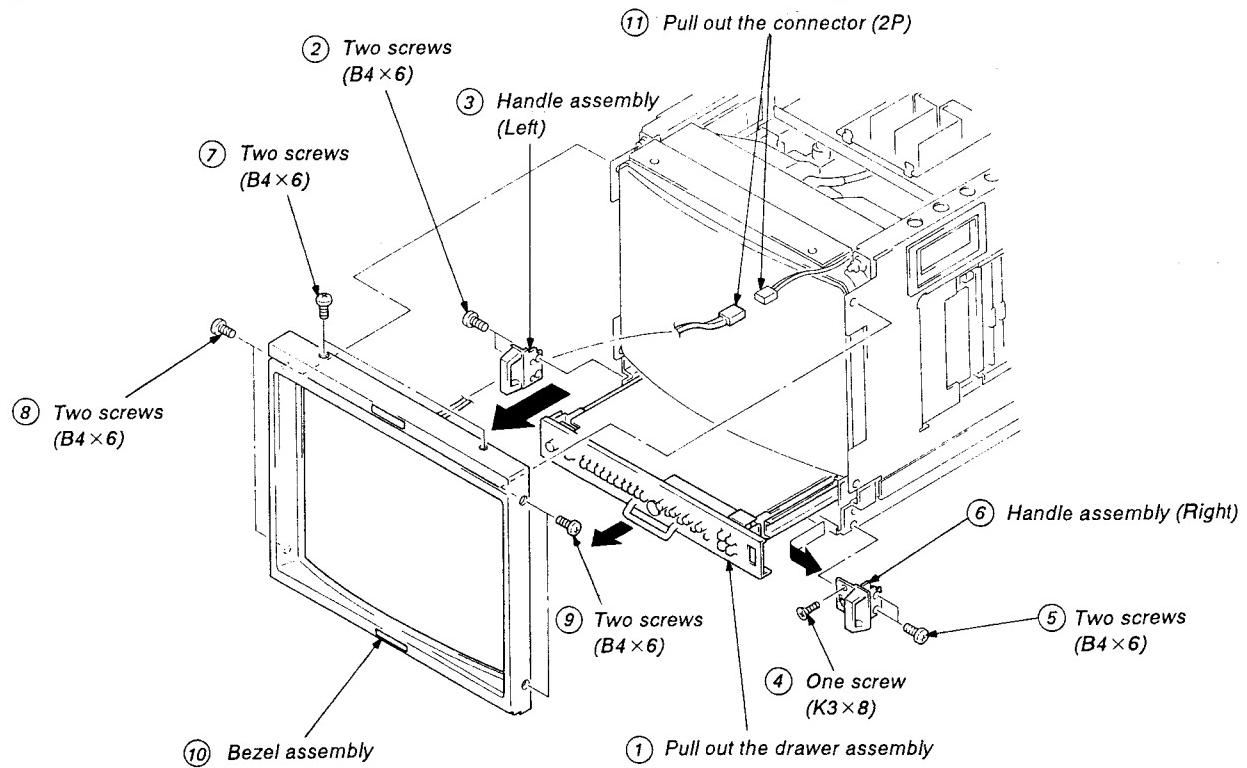


## SECTION 2 DISASSEMBLY

### 2-1. COVER REMOVAL

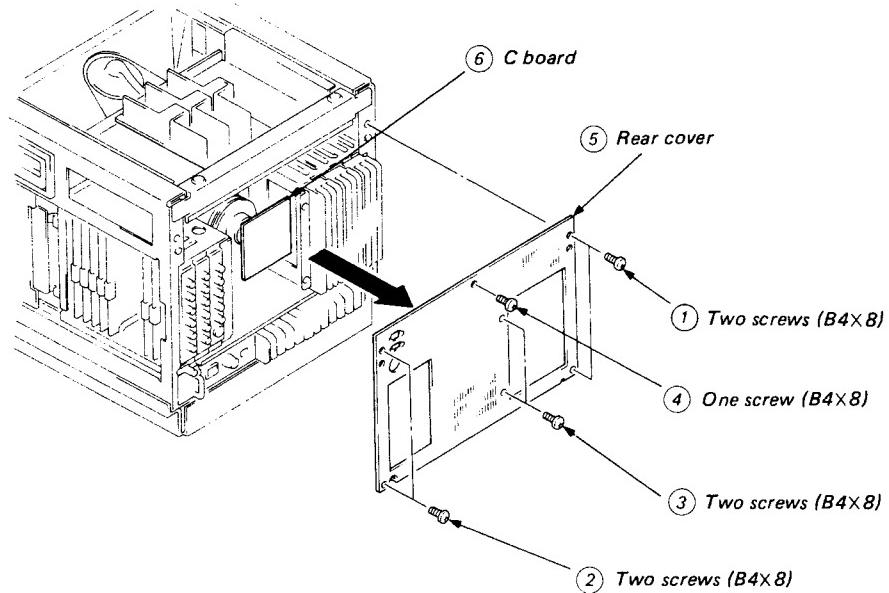


### 2-2. BEZEL ASSEMBLY REMOVAL



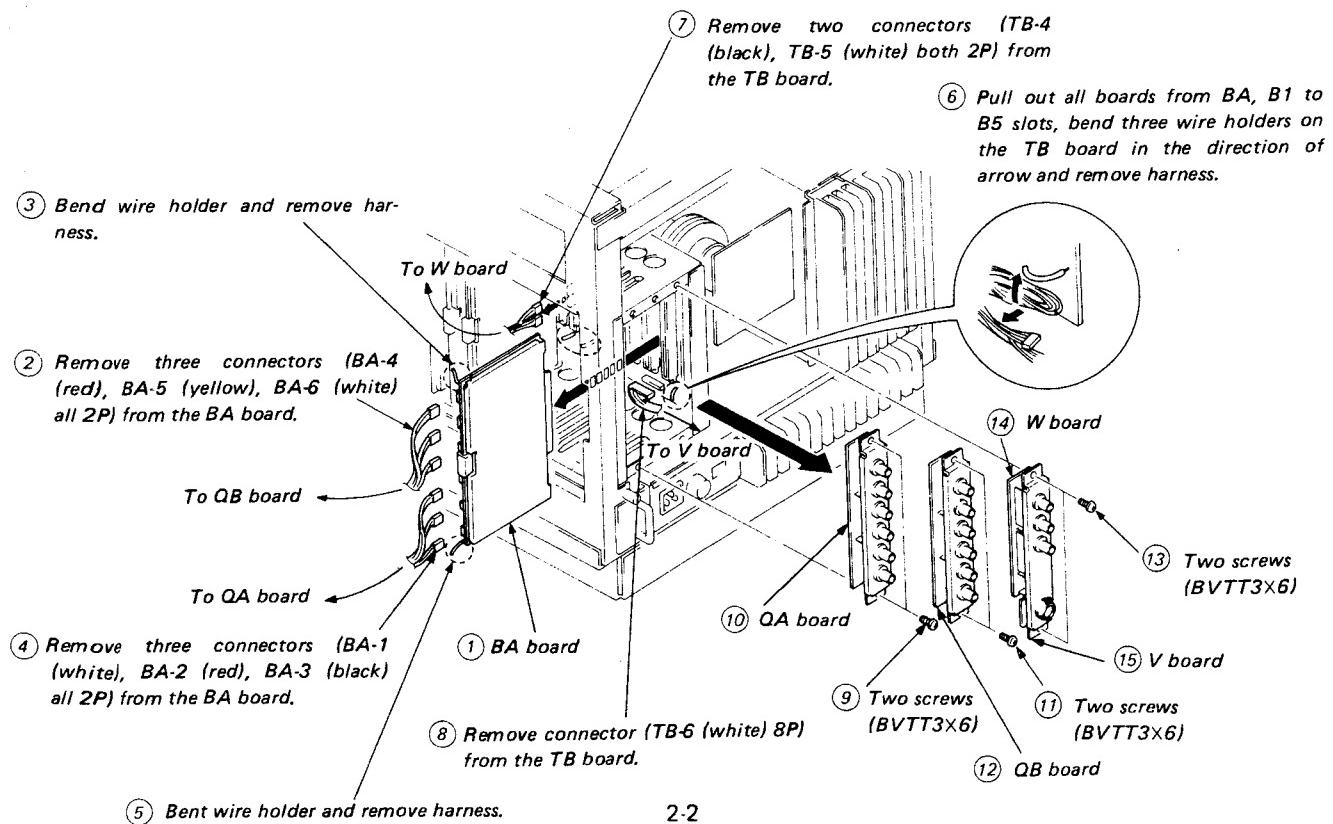
### 2-3. CHECK OF C BOARD

**Note:** Do it after removing cover (Right, Left).  
(Refer to 2-1. COVER REMOVAL)

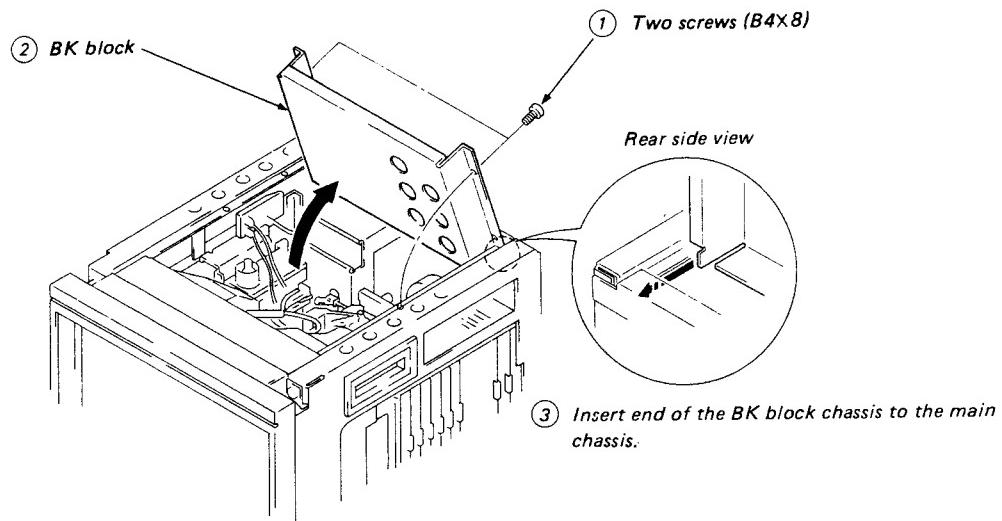


### 2-4. QA, QB, W AND V BOARDS REMOVAL

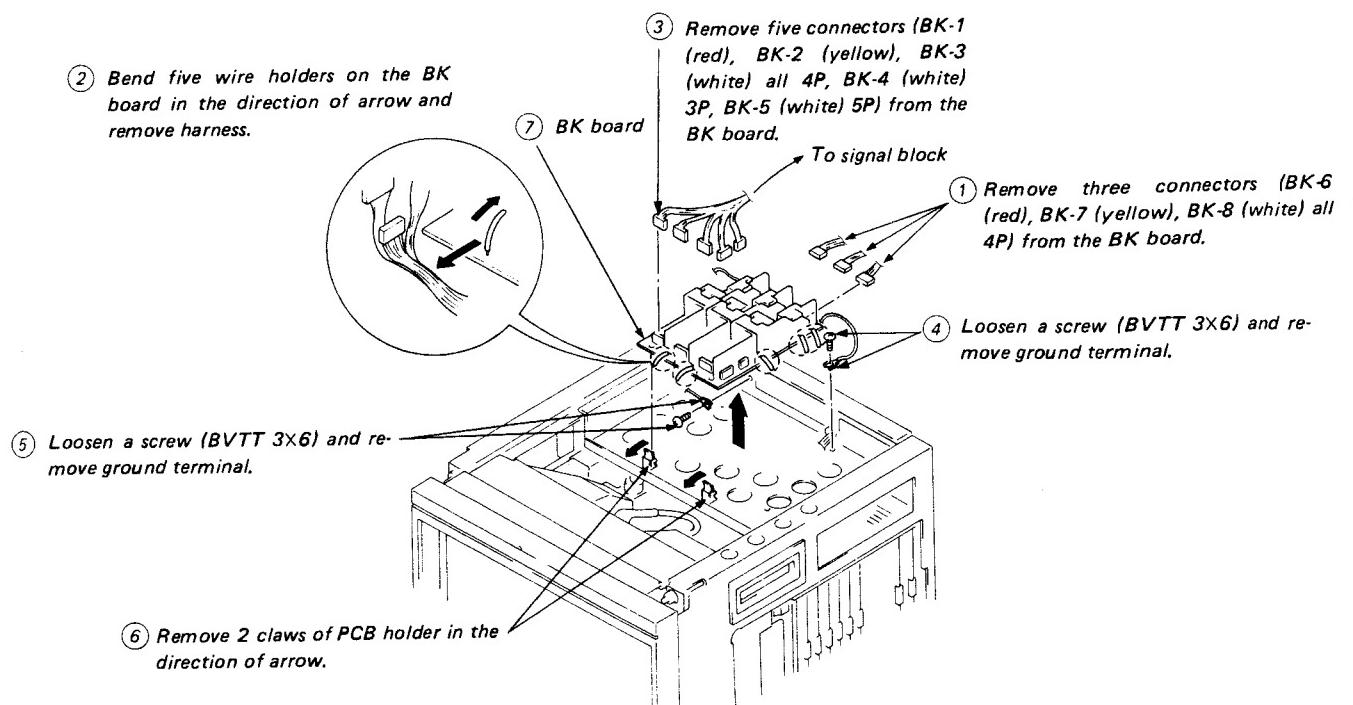
**Note:** Do it after removing rear cover. (Refer to 2-3.  
CHECK OF C BOARD)



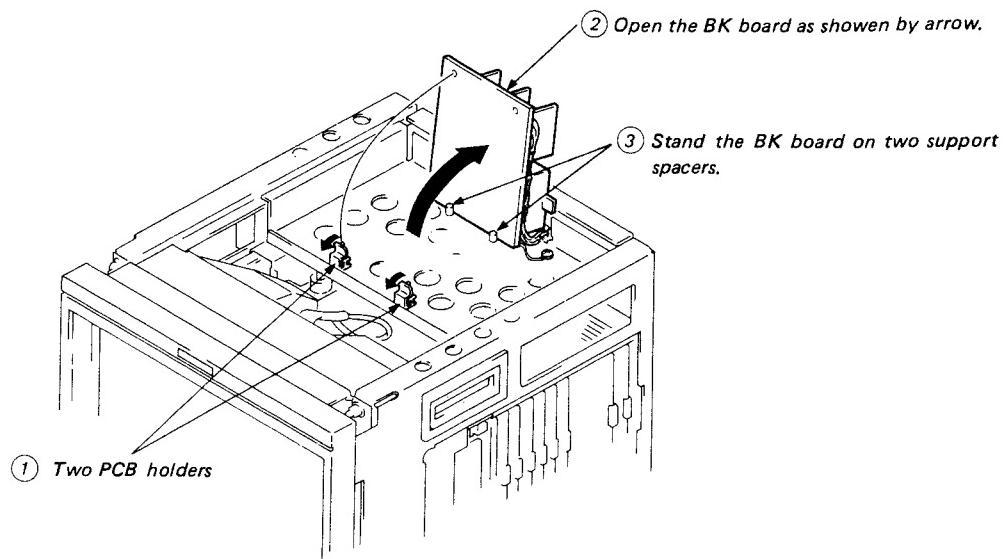
## 2-5. OPEN THE BK BLOCK



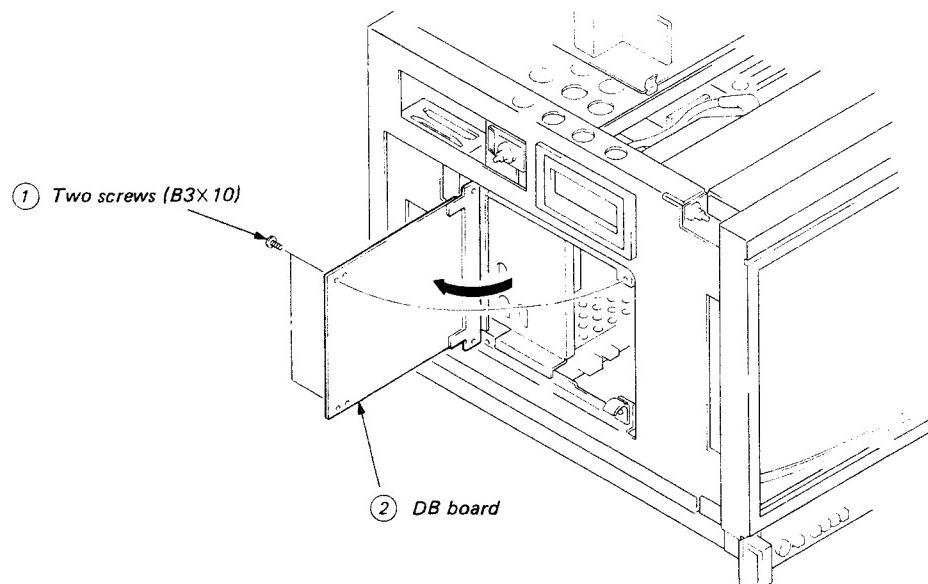
## 2-6. BK BOARD REMOVAL



## 2-7. CHECK OF BK BOARD

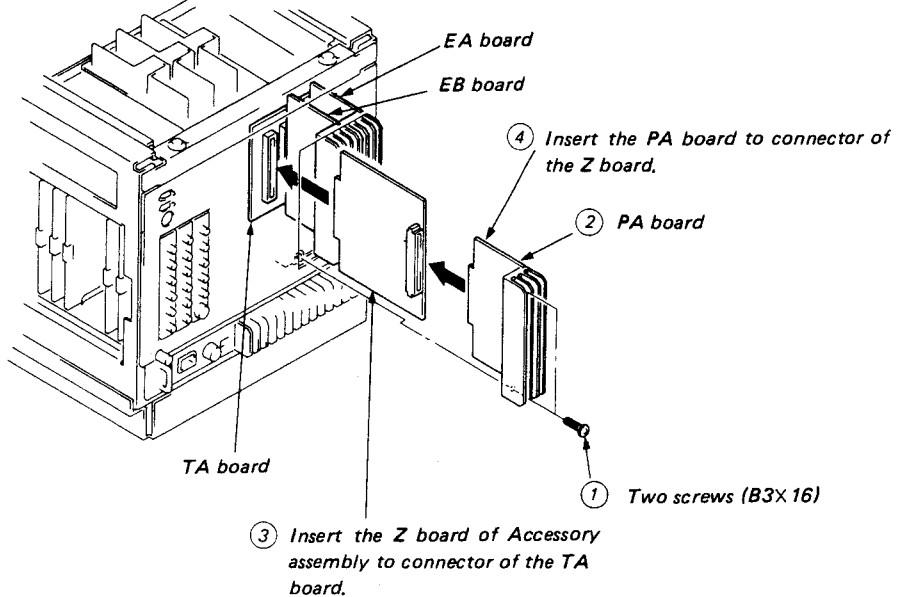


## 2-8. CHECK OF DB BOARD



## 2.9. CHECK OF PA BOARD

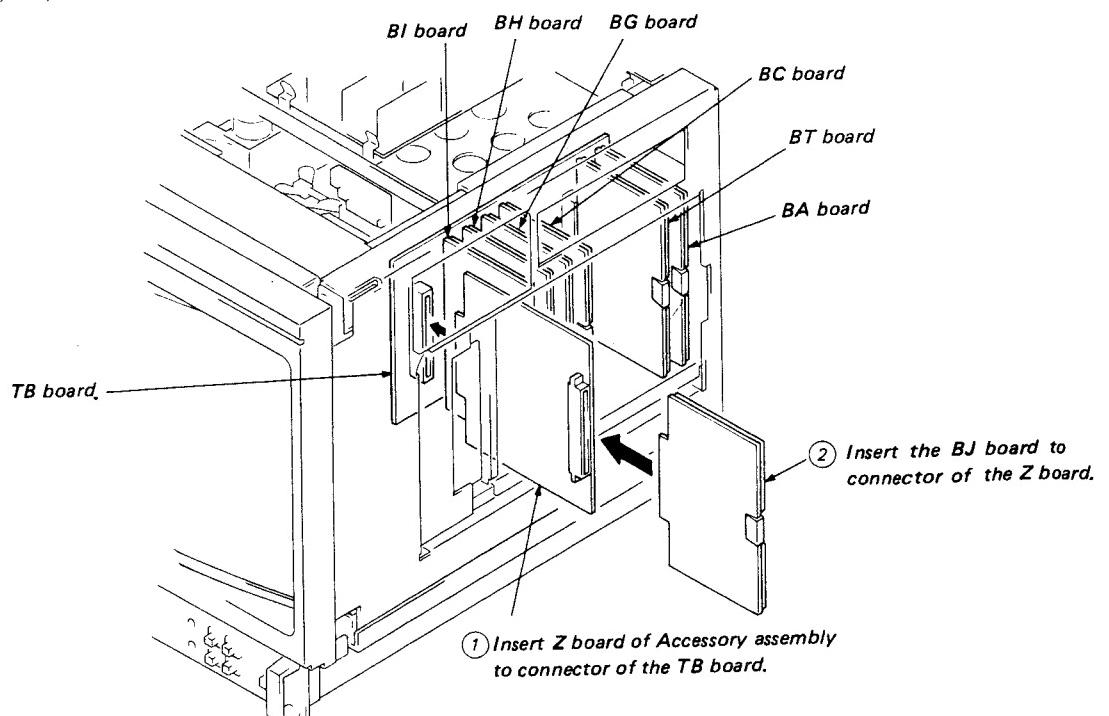
**Note:** EA and EB boards can be checked similarly.



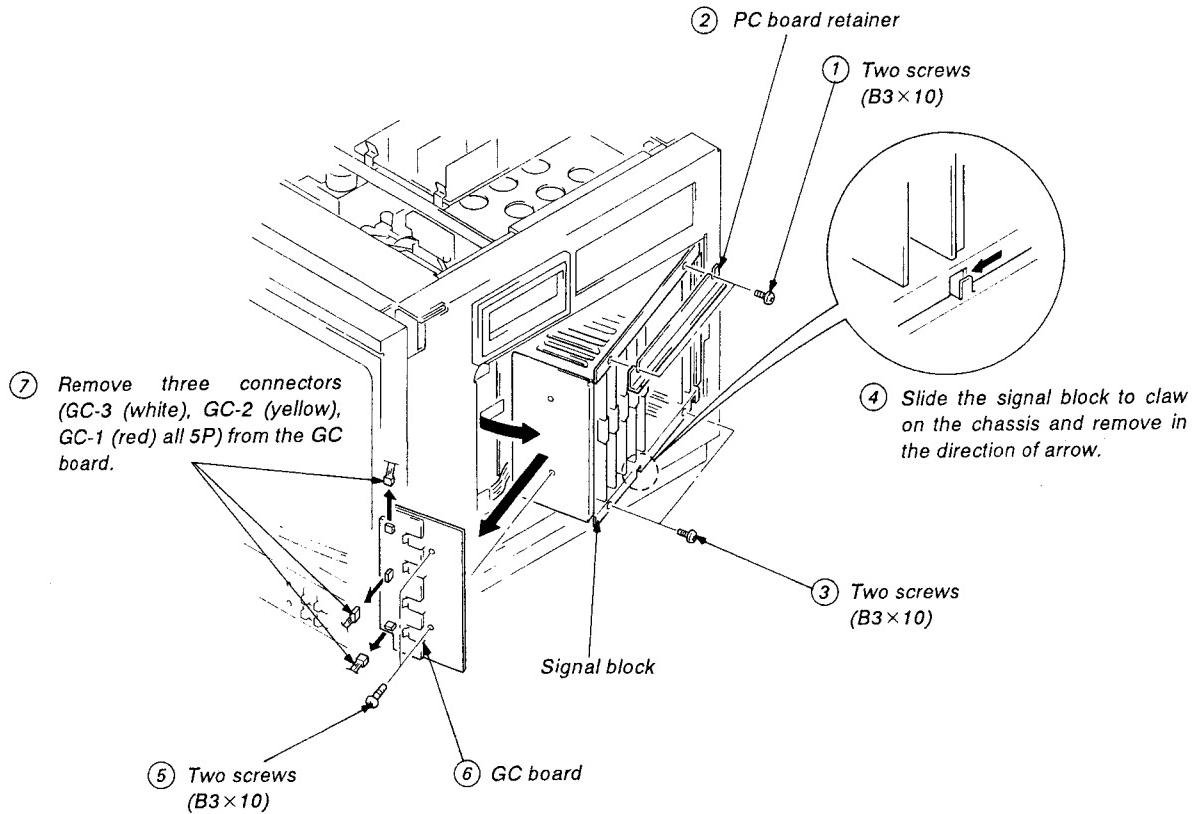
## 2.10. CHECK OF BJ BOARD

**Note:** PC board retainer is attach as anti-detach jig for the board. Remove the PC board retainer before checking.

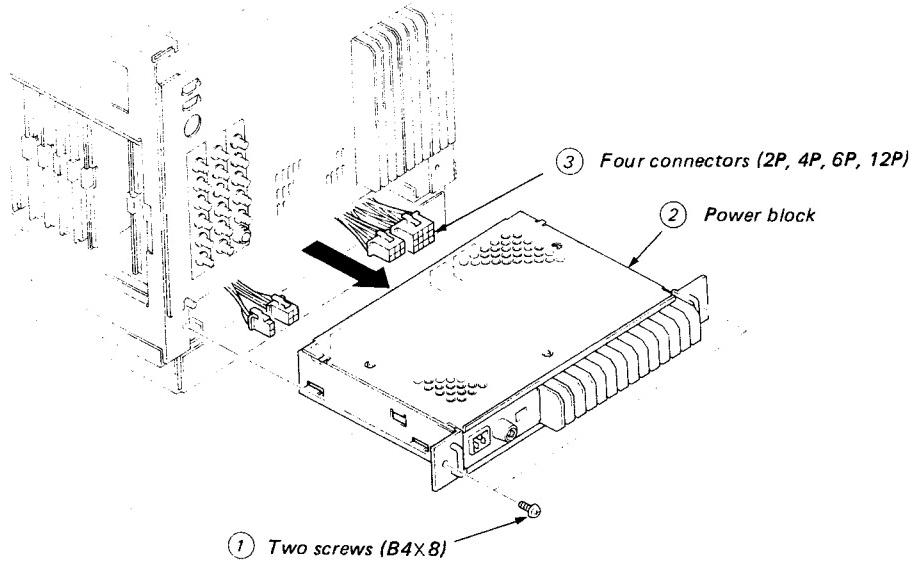
**Note:** BA, BC, BG, BH, BI and BT boards can be checked similarly.



## 2-11. GC BOARD REMOVAL

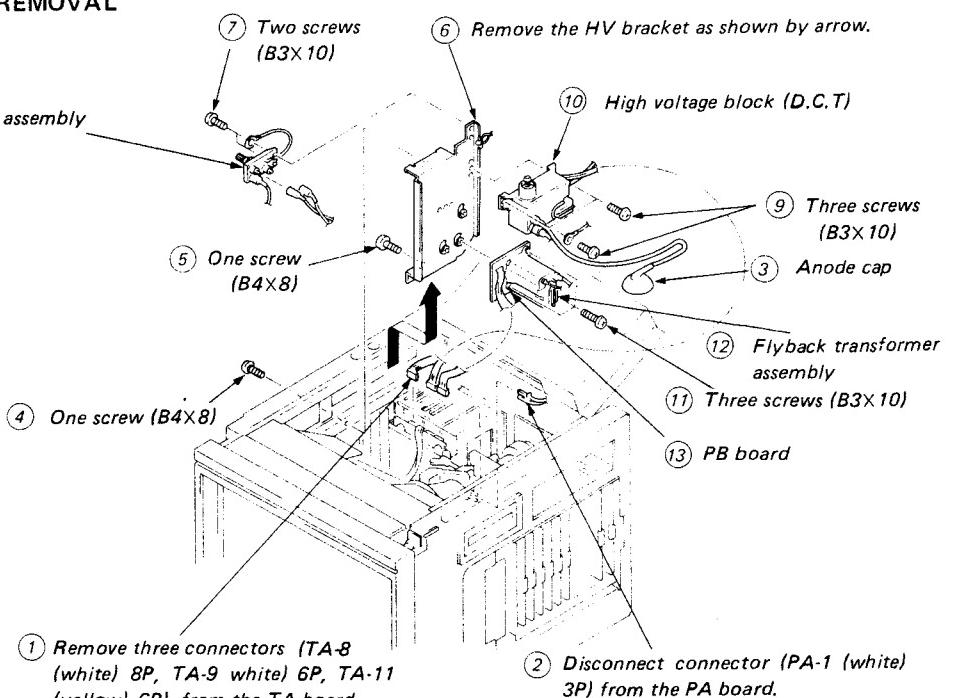
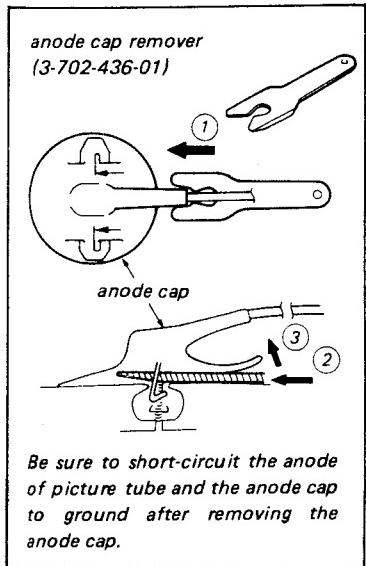


## 2-12. POWER BLOCK ASSEMBLY REMOVAL



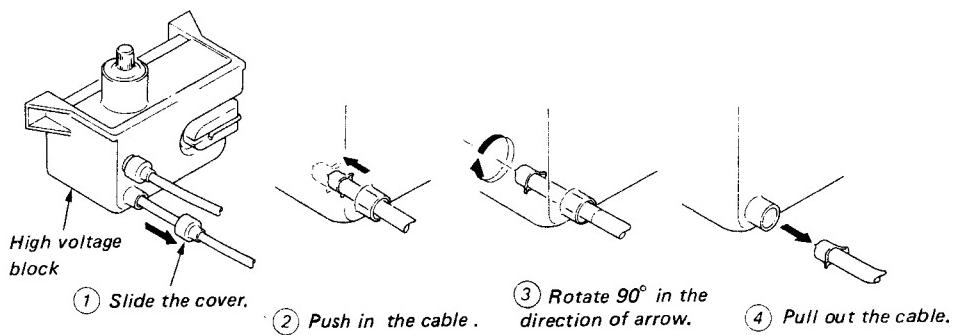
## 2-13. FLYBACK TRANSFORMER AND HIGH VOLTAGE BLOCK REMOVAL

### • REMOVAL OF ANODE CAP

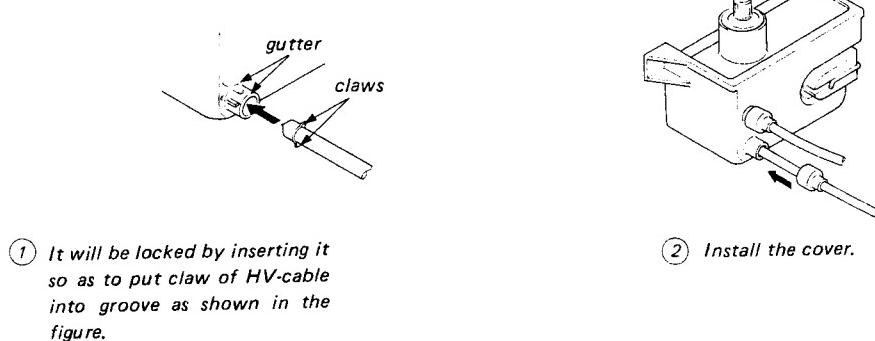


### 2-13-1. REMOVAL AND REPLACEMENT OF HIGH VOLTAGE CABLE

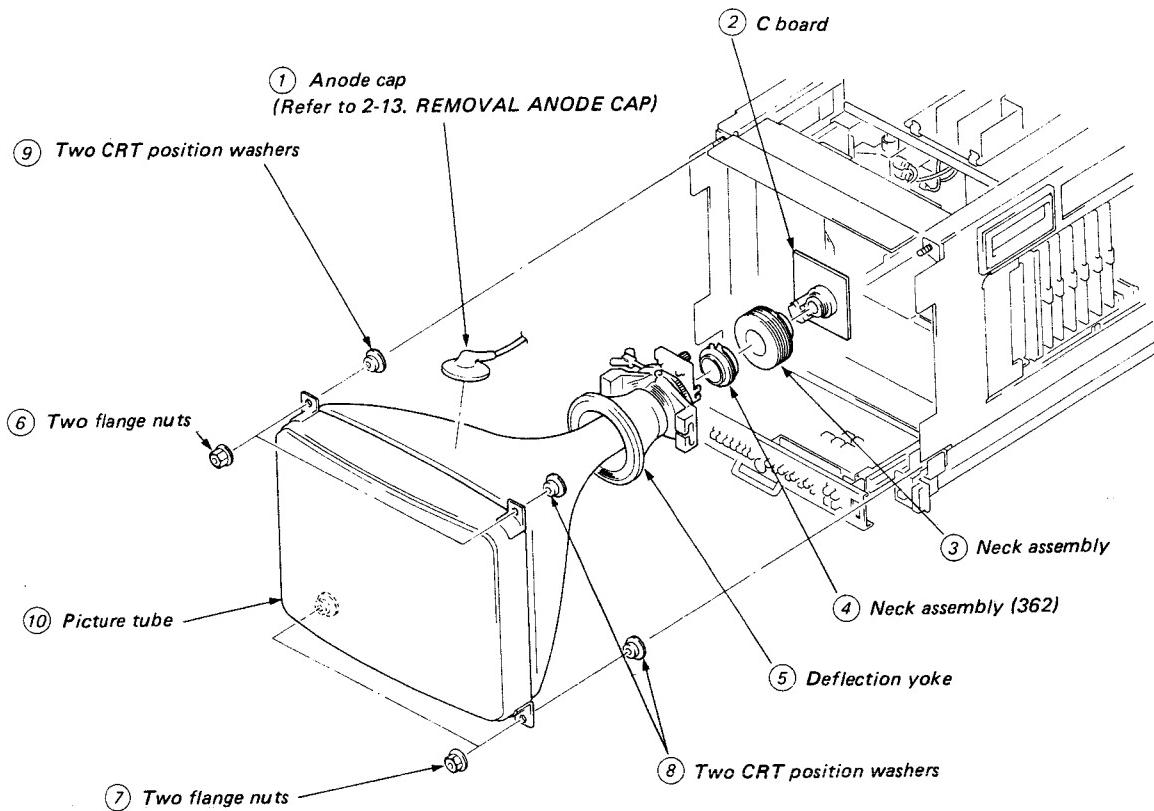
<Removal>



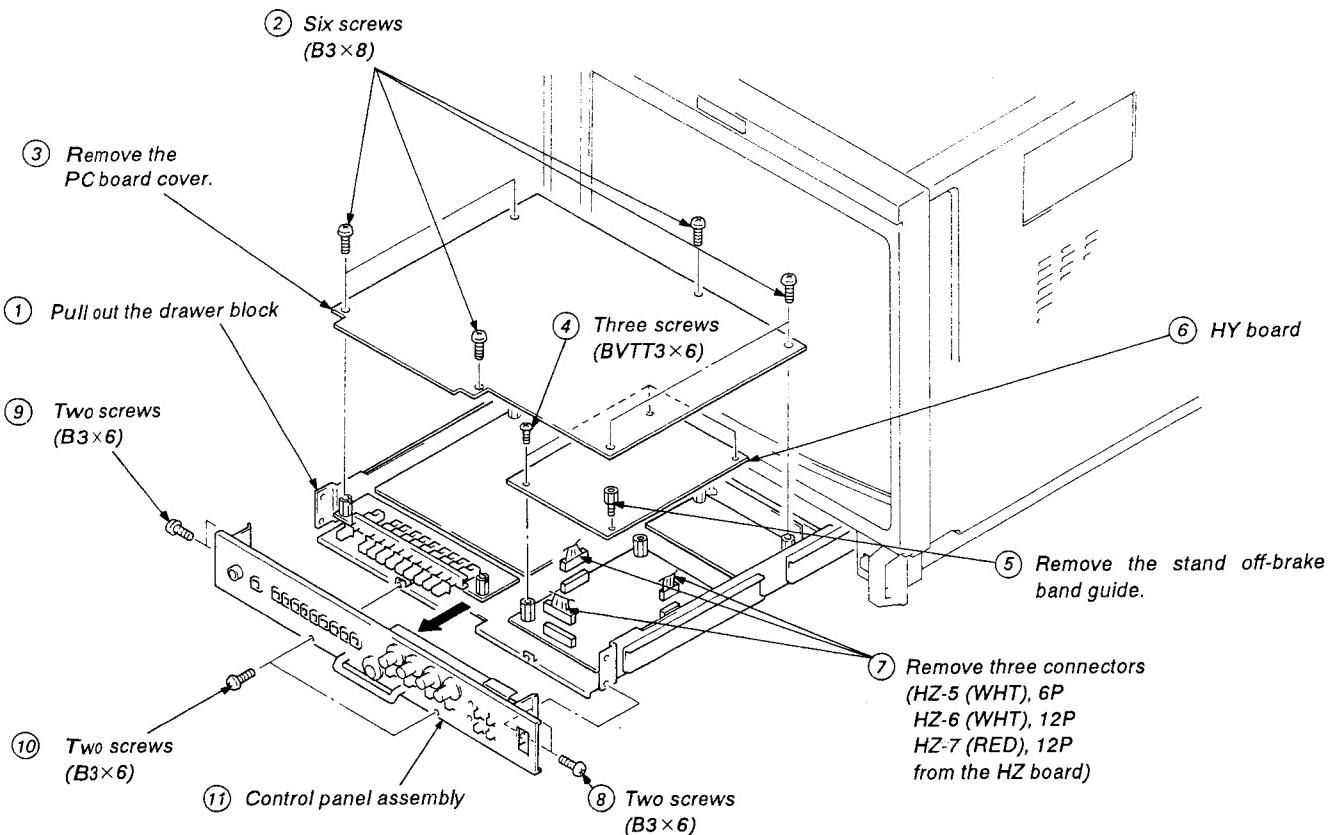
<Installation>



## 2-14. PICTURE TUBE REMOVAL



## 2-15. CONTROL PANEL ASSEMBLY REMOVAL



## SECTION 3

### CIRCUIT DESCRIPTIONS

#### 3-1. QA, QB, BA BOARDS

##### 3-1-1. Input Circuit

###### Cable Compensation (QA, QB)

CABLE COMPENSATION is composed of inductance L and capacitor C1 (Figure 1) in QA board and performs return loss compensation.

Grounding or floating in input terminal can be selected by switch S1.

On floating mode, common mode rejection can be performed. QB board also has same function.

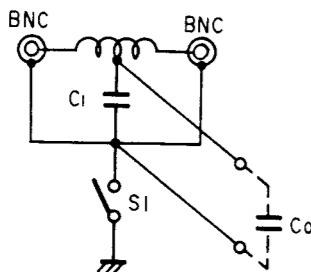


Figure 1

###### Hook Up Circuit (BA)

This circuit is composed of transistors Q101-105 and performs common mode rejection when SW S1 is selected to the floating mode.

In Figure 2, Gains of amplifier for input A and B are derived as follows.

$$A = \frac{R_c}{R_i} : \text{Gain of amplifier for input A}$$

$$B = -\frac{R_c}{R_i} : \text{Gain of amplifier for input B}$$

When input  $(ec + ei)$  is applied to input A and input  $(ec - ei)$  to input B, then output eo is

$$eo = \frac{R_c}{R_i} (ec + ei) + (-\frac{R_c}{R_i}) (ec - ei) = 2 \frac{R_c}{R_i} ei$$

This equation indicates that ec is eliminated and there is no common mode signal in output signal.

On hook up circuit, NF Amplifier (Negative Feedback) is used to get frequency response flat.

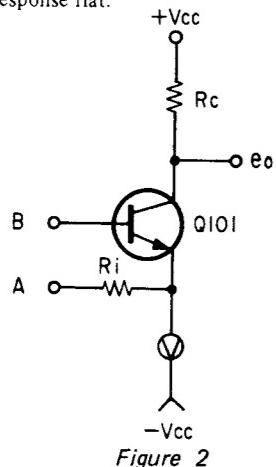


Figure 2

###### Input Select Sw, Sync Select SW (BA)

For composite video signal, VIDEO A/B/TEST mode is selected by INPUT SELECT SW (IC1). For sync signal, INT SYNC/EXT SYNC is selected by SYNC SELECT SW IC2.

##### 3-1-2. Sync AGC Circuit

This circuit is composed of following components: LPF (Low Pass Filter) (Q701), variable gain amplifier (Q702-Q705), bias control circuit (Q708-Q710), gain control circuit (Q711, 712) and amplifier (Q706, 707). Figure 3 shows block diagram of this circuit.

An inverted composite video signal or composite sync signal (eo) is derived at the collector of transistor Q707.

The bias control circuit compares maximum value of eo with base voltage of Q708 (E1) and controls bias of amplifier so that they match.

Also the gain control circuit compares pedestal level of eo with base voltage of Q711 (E2), and controls variable gain amplifier so that they match.

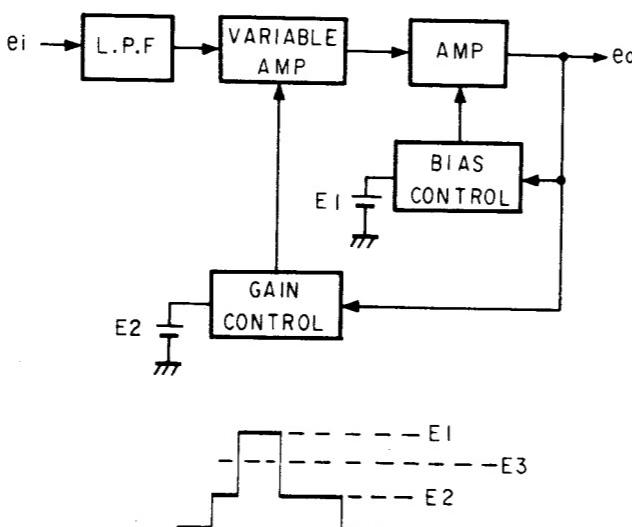
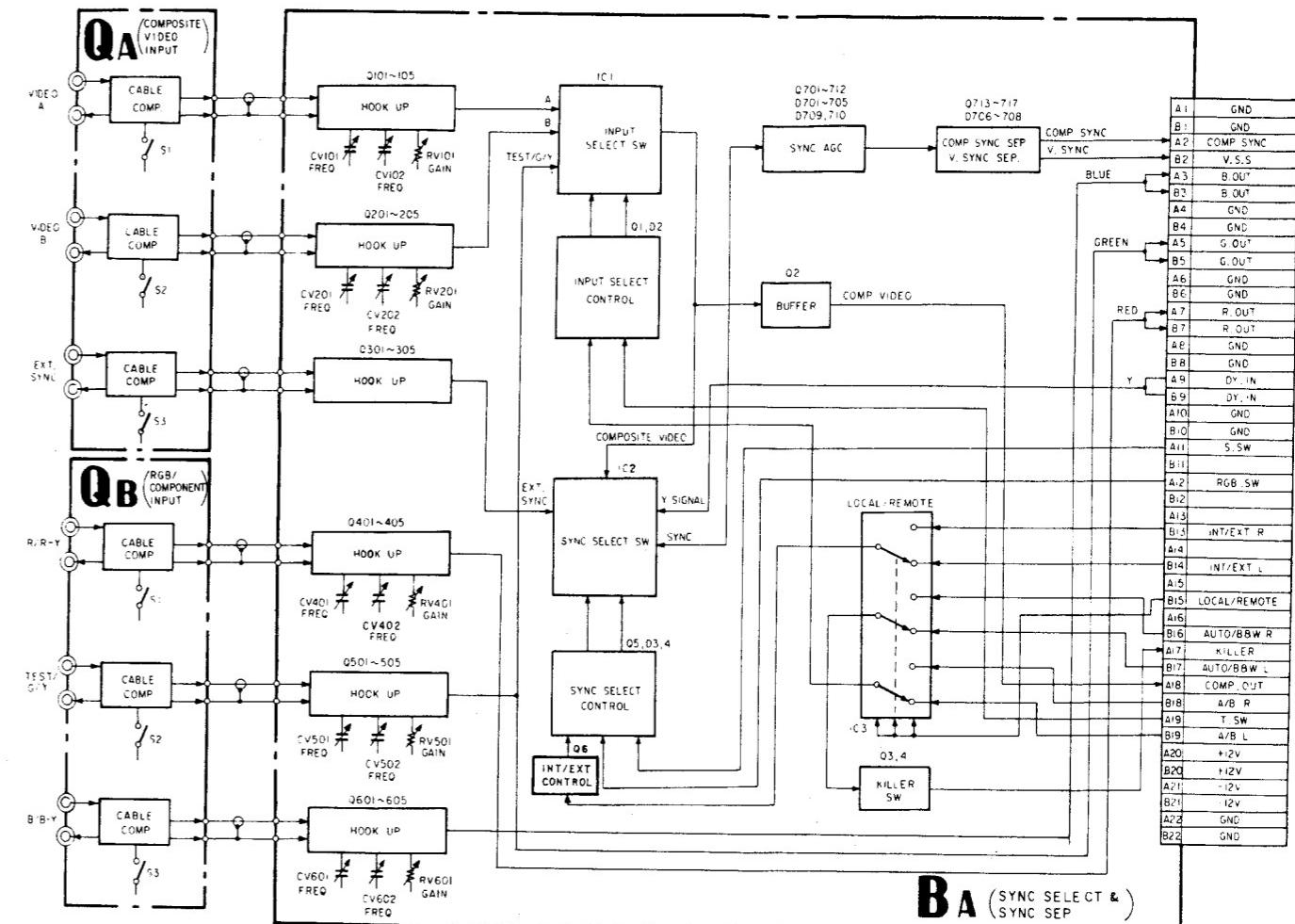


Figure 3

#### BLOCK DIAGRAM OF QA, QB, BA BOARDS



BA (SYNC SELECT & SYNC SEP)

### 3-2. BG BOARD

#### 3-2-1. Luminance Signal Circuit

##### Filter SW

IC1 works as a selector switch of composite video signal or luminance signal derived from Y/C separation circuit. This IC activates by either FILTER-SW in right side drawer or killer signal.

##### Aperture Control

Aperture control circuit is composed of DL1(delay line), transistors Q5, 7, 8 and IC2. IC2 operates as a variable resistor. Resistance value between Pin① and ③ is controlled by the potential between pin ③ and pin ④, also pin ① and pin ⑥.

Input signal:  $e_{T0}$ ,  
Delayed signal by delay line:  $e_{T1}$   
Second delayed signal:  $e_{T2}$

See Figure 4  
 $e_1$  (at base of transistor Q5) is obtained as below due to the combination of direct wave and reflected wave by DL1.

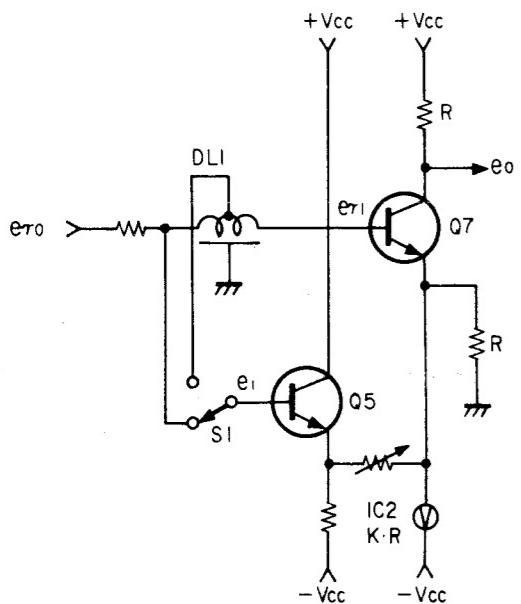


Figure 4

$$e_1 = (e_{T0} + e_{T2})/2$$

Therefore  $e_0$  is

$$e_0 = -\left(\frac{1}{K}(e_{T1} - \frac{1}{2}(e_{T0} + e_{T2}))\right)$$

1st term      2nd term

K: variable constant

In the above equation, 1st term shows waveform A in Figure 5 and 2nd term shows waveform B. When K is variable, amount of pre-shoot and overshoot can be varied.

Switch S1 is used for selection of boost frequency.

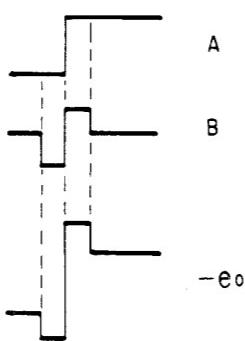


Figure 5

#### Y Delay, Y Buffer Amplifier

Y/C delay time can be matched by delay line DL2 and Y signal is amplified and fed to the next stage.

#### 3-2-2. Color Gain Control Circuit

In this section (R-Y) signal processing is described as below, but (B-Y) signal is processed by the same way as (R-Y) signal.

##### R-Y Amplifier and Clamping

The R-Y color difference signal from the decoder board is amplified at the amplifier composed of transistors Q21 and Q22 and clamped at the Horizontal Sync by transistors Q23, Q24 and IC3.

##### R-Y Gain Control Amplifier

This is a variable gain control amplifier composed of variable resistor element of IC4 and transistors Q25-Q27. Gain of this amplifier can be controlled by the color gain control voltage at the pin ⑫ of IC4.

##### AGC Pulse Generator

Generates the reference pulse for AGC (Automatic Gain Control) of color gain control circuit.

##### Gain Control Amplifier for AGC Pulse

Circuit is the same as R-Y GAIN CONTROL AMPLIFIER. Gain of this amplifier is controlled by the voltage at pin ⑧ of IC4.

##### Color Gain Control

AGC pulse, which is output signal of Gain control amplifier for AGC pulse, is clamped by IC6 (2/3) and is made sampling by IC6 (3/3). Amplitude of AGC pulse and DC voltage supplied from CHROMA control on the front panel are compared and matched by IC7 (1/2) with controlling the above gain control amplifier. This control voltage is supplied to the control terminals of R-Y and B-Y gain control amplifiers and controls color gain.

#### 3-2-3. G-Y MATRIX amplifier

G-Y signal is obtained by matrixing R-Y signal and B-Y signal with the amplifier composed of transistors Q44 and Q45.

#### 3-2-4. NTSC MATRIX SW

NTSC MATRIX mode operation is obtained by the matrix circuit composed of resistor networks CP14-CP19, transistor Q29, Q30, Q39, Q40, Q49, Q50 and IC5. CP14-CP19 perform matrixing and IC5 works as a switch.

#### 3-2-5. Vector Output Circuit

##### R-Y Vector Output Gain Switcher

Vector output levels are compensated for each color standards, NTSC, PAL and SECAM.

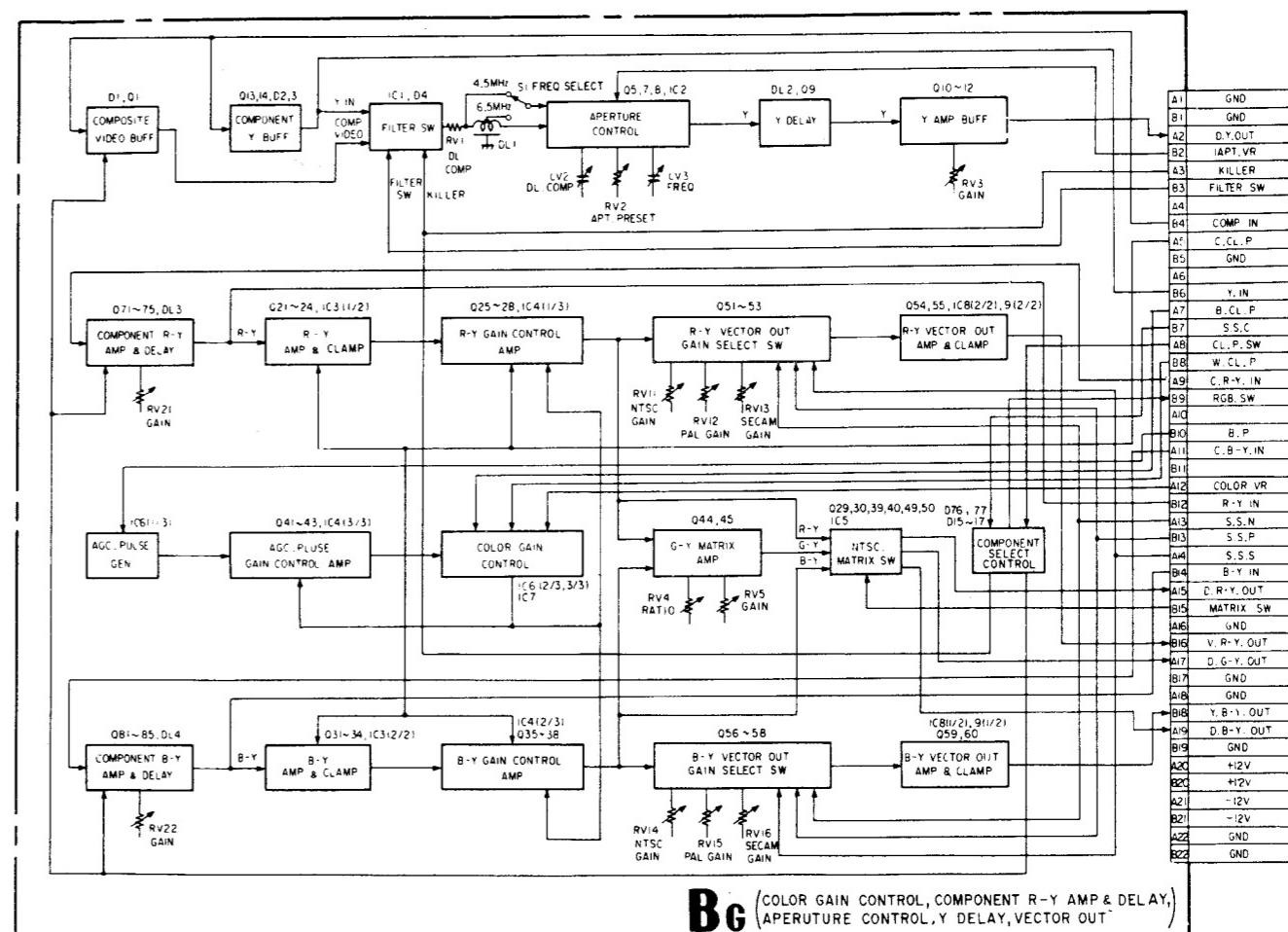
##### R-Y Vector Output Amplifier and Clamping

Vector output signal is amplified by IC9 (2/2) and transistor Q54 and clamped by IC8 and transistor Q55 for the suitable operation.

#### 3-2-6. COMPONENT R-Y Amplifier and Delay Circuit

R-Y signal of COMPONENT signal is compensated with amplitude, porality and delay time to match the R-Y signal of decoder output.

### BLOCK DIAGRAM OF BG BOARD



BG (COLOR GAIN CONTROL, COMPONENT R-Y AMP & DELAY, NTSC MATRIX SW, V-G-Y OUT, D-G-Y OUT, GND, Y-B-Y OUT, D-B-Y OUT, +12V, -12V, GND)

### 3-3. BH BOARD

#### 3-3-1. Switching Circuit Between Y (Luminance) Signal, Color Difference Signal and RGB Signal, AGC Pulse Insertion, Y-C Matrix

**Switching Circuit of Y Signal, Crosshatch Signal and SET UP Signal, Buffer**

Y signal, crosshatch signal and SET UP signal are selected by the switcher (IC1 (1/3) (2/3)) and selected signal is output via buffer Q4.

**Switching Circuit of R-Y Signal, Red Signal and SET UP Signal (Same as B-Y, G-Y Signal)**

R-Y signal, Red signal, SET UP signal are selected by IC2 (1/3, 2/3) and selected signal is output via buffer Q4.

**Y Signal Screening (Same as R-Y, B-Y, and G-Y Signals)**

The signal is performed SAMPLE and HOLD (S/H) at the back porch of signal by transistor Q2 and IC5 (2/2). Y screening is performed by replacing S/H output signal, by the original signal.

For color difference signals screening is made at the Horizontal Sync portion.

**Red Matrix, Blue Only SW, Buffer (Same as Green and Blue)**

Red is obtained by Y-C matrix circuit composed of resistor network CP9 from color difference signals.

AGC pulse from pulse generator is inserted into Red signal for contrast control.

IC7 activates by the Blue only SW on the front panel. Blue only SW is used for the display of blue signal as a monochrome picture.

#### 3-3-2. Contrast Control, Brightness Control, Peak Limitter

**Red Contrast, and Brightness Control Amplifier (Same as Green and Blue)**

This is a variable gain control amplifier composed of variable resistor element IC101 and transistor Q102 and Q103. By controlling the voltage at pin ④ of IC101, contrast control is performed, and brightness control is done by controlling the bias voltage of transistor Q102.

**Red limitter (Same as Green and Blue)**

When excess input signal comes in, amplitude is limited by the limitter composed of transistors Q104 and Q105.

**Red Contrast Control**

AGC pulse inserted in Red signal is clamped by transistor Q107 and sampled by transistor Q108.

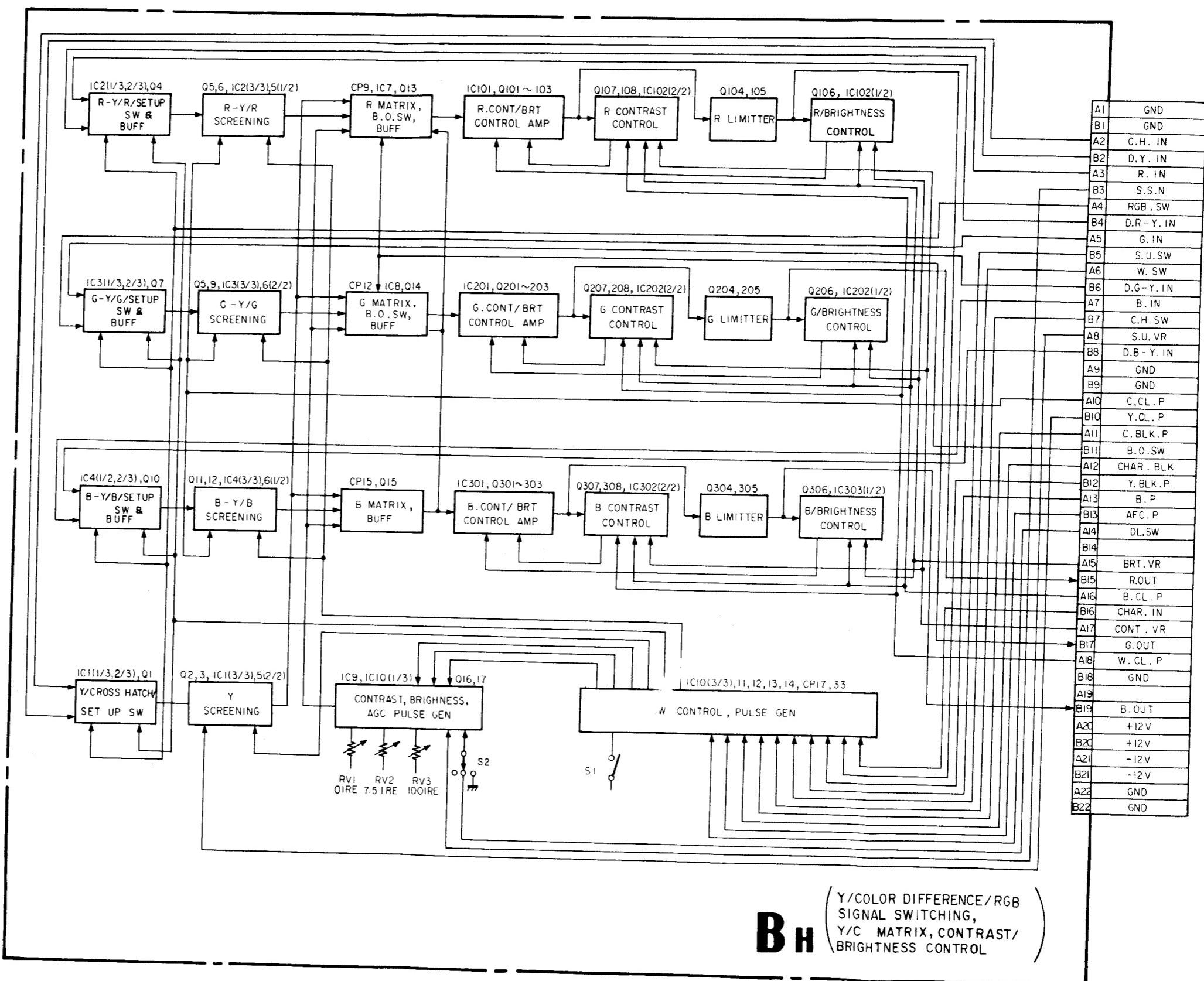
Amplitude of above AGC pulse is compared with the reference voltage applied from CONTRAST control on the front panel in IC102 (2/2).

Contrast control is performed by controlling the gain of Red contrast brightness control amplifier so that these voltages may match.

**Red Brightness Control (Same as Green and Blue)**

The black level of Red signal is performed SAMPLE and HOLD (S/H) by transistor Q106. This S/H voltage is compared with the reference voltage applied from Brightness control on the front panel in IC102 (1/2). Brightness control is performed by controlling the bias of Red contrast Brightness control amplifier so that these voltages may match.

BLOCK DIAGRAM OF BH BOARD



### 3-4. BI BOARD

#### 3-4-1. Red Screen SW,AGC Pulse Insertion (Same as Green and Blue)

Red signal can be cut off by RED SCREEN SW on the front panel. Horizontal rate AGC pulse is removed and the reference pulse is inserted in the signal for the GAIN and BIAS adjustment of video output amplifier and for the beam control circuit.

#### 3-4-2. Red Limitter, Gain Bias Control Amplifier

This limitter is used for limiting the excess input level of the signal below 0V DC.

The GAIN/BIAS CONTROL amplifier is composed of variable resistor element and transistors as same as contrast control amplifier' (See section of BH board)

#### 3-4-3. Red Feedback Amplifier, Red Gain Control Red Bias Control Circuit

RED FEEDBACK amplifier inverts the phase of the signal derived from VIDEO OUTPUT amplifier via NF BUFF (Negative Feedback Buffer) in BK board.

The BIAS of VIDEO OUTPUT AMPLIFIER is controlled by RED BIAS CONTROL circuit so that the black level of inverted signal may be 0V DC.

(This time, black level of VIDEO OUTPUT will be -90V DC.)  
RED GAIN CONTROL circuit controls the gain of VIDEO OUTPUT AMPLIFIER so that the level of the reference pulse may match to the voltage at pin ③ of IC103.

(When GAIN control (RED) in the drawer is turned, the level of the reference pulse inserted in section 1 changes. And amplitude (Gain) of Red signal changes so that the amplitude of the reference pulse derived from RED FEEDBACK amplifier may be maintained constant by GAIN CONTROL circuit.)

#### 3-4-4. Red Cathode Current Detection, Red G1 Control Circuit (I-V Conversion)

Refer to the BK board section of beam control circuit.

#### 3-4-5. ABL Detector, Drive Control, Over Drive

The reference level of GAIN CONTROL circuit is controlled by ABL detector and DRIVE CONTROL so that the cathode current of CRT exceeds the predetermined (Preset) value to prevent damage of CRT. OVER DRIVE circuit lights up the OVER LOAD LED on the front panel for warning.

#### 3-4-6. G2 Control Circuit

Circuit diagram of G2 control circuit is shown in Figure 6.  
The signal for G1 BIAS control is fed to base of the transistor Q11 from RED G1 BIAS control circuit. (Same as G and B)  
Only one of the highest voltages among the base voltages of transistors Q11-Q13 is turned on and is compared with the reference voltage of base voltage Q14.  
And this circuit drives transistor Q105 located in PA board so that Transistor Q105 in PA board drives G2 voltage for adjusting cut off level of CRT.  
Base voltage of transistor Q14 (reference voltage) is set so that the voltage of Black level at G1 electrode may be -120V DC and maintain Ekco (cut off voltage) -120V constant.

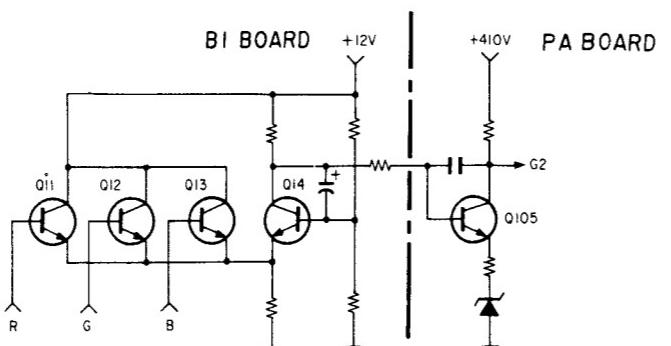
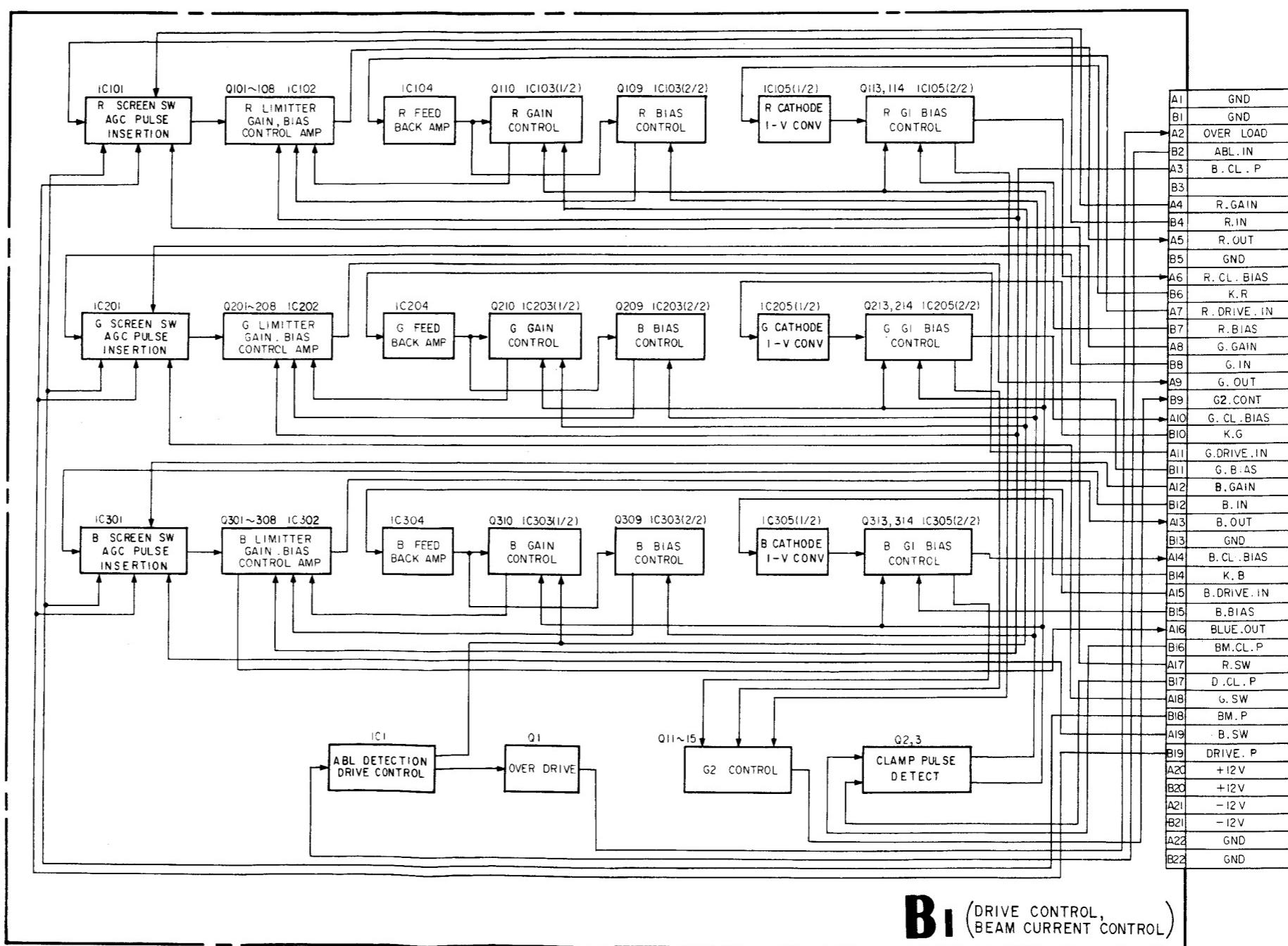


Figure 6

BLOCK DIAGRAM OF BI BOARD



### 3-5. SYNC PROCESSOR, PULSE GENERATOR (BJ BOARD)

#### 3-5-1. 1H Pulse Processing

The composite sync is separated from incoming signal at BA board. And 1H sync is made by separating V sync and equalizing pulse from composite sync.

Also H sync which has constant pulse width is made from 1H sync.

#### 3-5-2. 2fH Multivibrator

This circuit generates 2fH rate pulse from H rate flyback pulse.

#### 3-5-3. Vertical Counter

The 2fH rate pulse is counted down to generate Vertical rate trigger pulse for vertical deflection circuit.

When there is no incoming signal, trigger pulse is generated by vertical counter (384H).

When there is incoming signal with V sync, this counter circuit is reset by V sync and generates trigger pulse synchronized with V sync.

Also in order to increase stability of vertical scanning, noise gating process is made during V sync period.

#### 3-5-4. V Sync and Delay

V sync and V BLANKING pulses are generated by output trigger pulse from vertical counter.

And when V DELAY SW on the front panel is selected ON, these pulses are generated in a V/2 delayed position relative to the V sync position of incoming signal.

#### 3-5-5. Crosshatch Generator

Internal crosshatch signal is made as follows.

The vertical lines are generated by approx. 18fH rate pulses synchronized with flyback pulse.

And flyback pulse is counted down to generate horizontal lines.

#### 3-5-6. Burst Gate Pulse, Y-CLAMP Pulse, C-CLAMP Pulse Generator

The Burst Gate Pulse (B.G.P.), clamp pulse for luminance signal (Y.CLP) and clamp pulse for color difference signal (C.CLP) are generated from 1H sync via LCR network and transistors.

#### 3-5-7. Picture Set Up Pulse Generator

This is the gate pulse generator for picture set-up function, and consists of mono multipliers.

#### 3-5-8. Split, Y Blanking, C Blanking Pulse Generator

Y BLANKING pulse (Y BLK P) and C BLANKING pulse (C BLK P) are generated. These pulses are used for the purpose of DC restoration of color difference signal, Y signal and RGB signal. DC restoration is made by inserting the black reference signal during blanking period in the signal. Also C.BLK. pulse is mixed with vertical rate blanking signals for SPLIT display and for B/W display.

#### 3-5-9. Horizontal Rate AGC and Clamp Pulse Generator

COLOR GAIN control, CONTRAST control and BRIGHTNESS control are stabilized by insertion of reference signal and using feedback circuit. Horizontal rate BLACK pulse (B.P), BLACK CLAMP pulse (B.CL.P) and WHITE CLAMP pulse (W. CLP) are generated here.

#### 3-5-10. Vertical Rate AGC and Clamp Pulse Generator

In this model, BEAM CONTROL circuit is used for high stability in white balance.

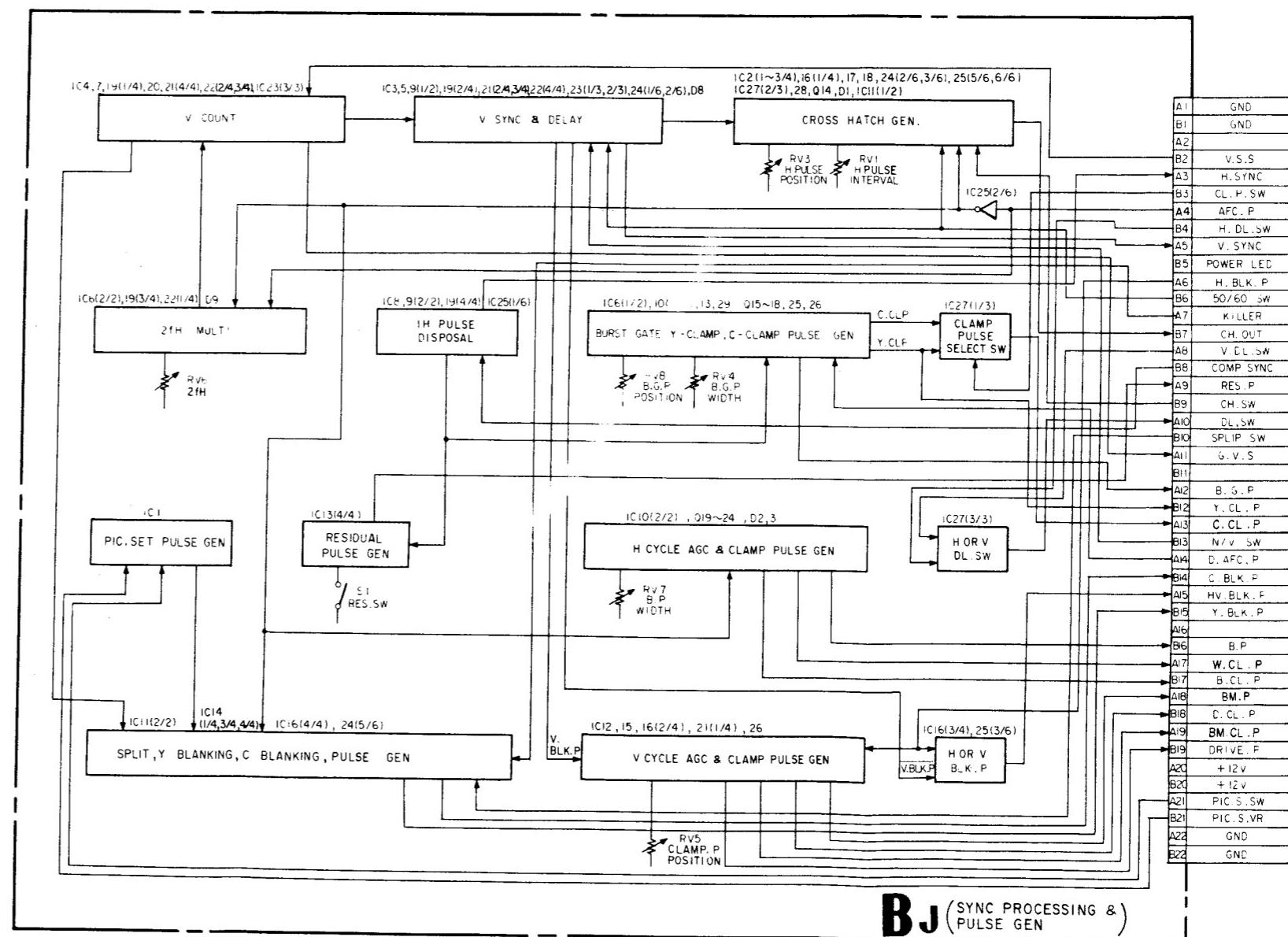
The reference signal is inserted in the signal for gain control circuit in video output amplifier and for beam control circuit. Vertical rate pulses are used for this purpose.

Vertical rate BEAM PULSE (BM.P) DRIVE PULSE (DRIVE.P) and BEAM CLAMP PULSE (BM.CL.P) are generated here.

#### 3-5-11. Others

Black reference is determined at the position of clamping in black reference insertion circuit for both color difference signal and RGB signal. Accordingly C.CL.P is used as clamp pulse for color difference signal processing and Y.CL.P is for RGB signal. CLAMP PULSE SELECTION SW switches C.CL.P or Y CL.P to the clamp pulse for the insertion of black reference.

BLOCK DIAGRAM OF BJ BOARD



TIMING CHART OF MAJOR PULSE (BJ BOARD)

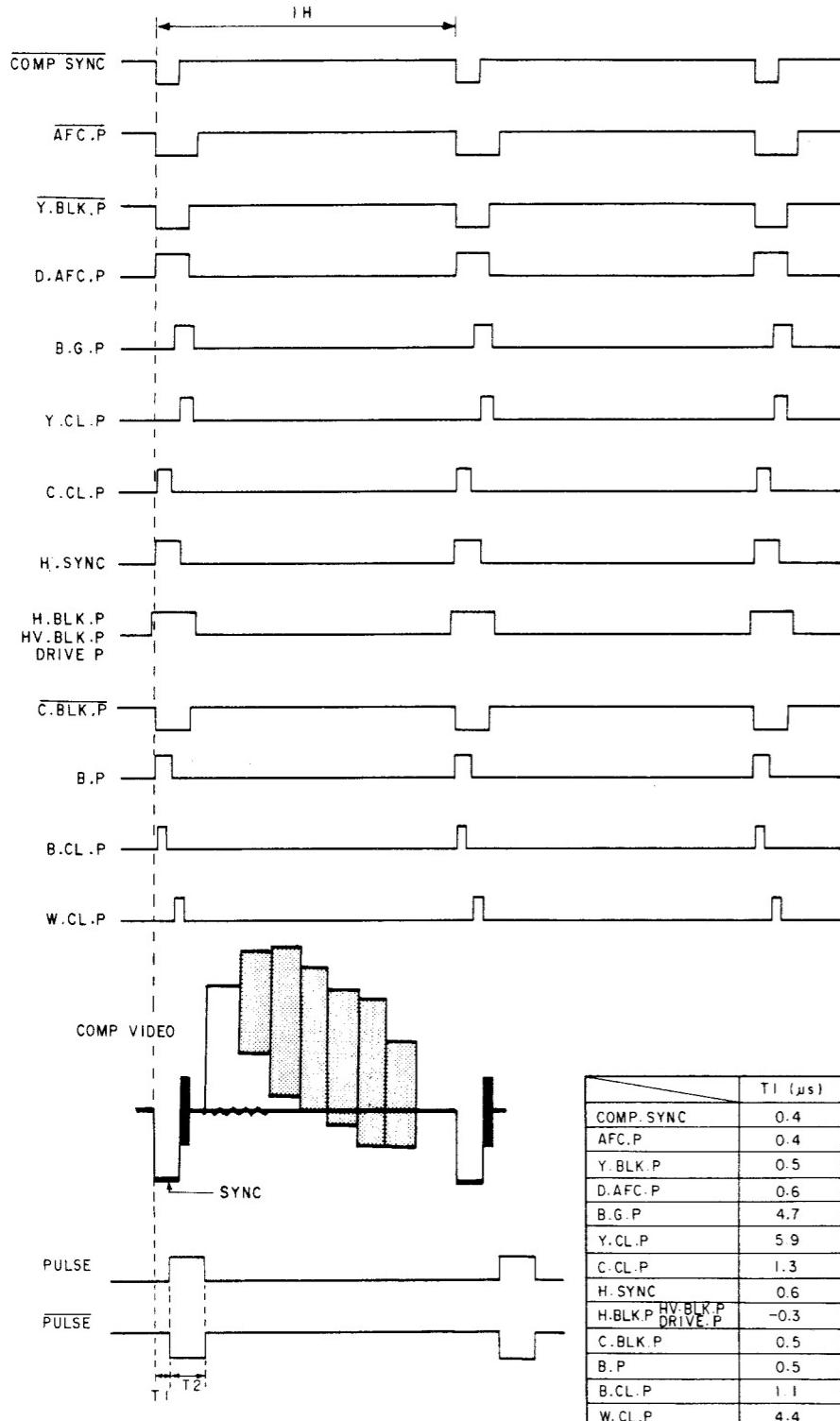


Figure 7

FIELD 1 VERTICAL BLANKING

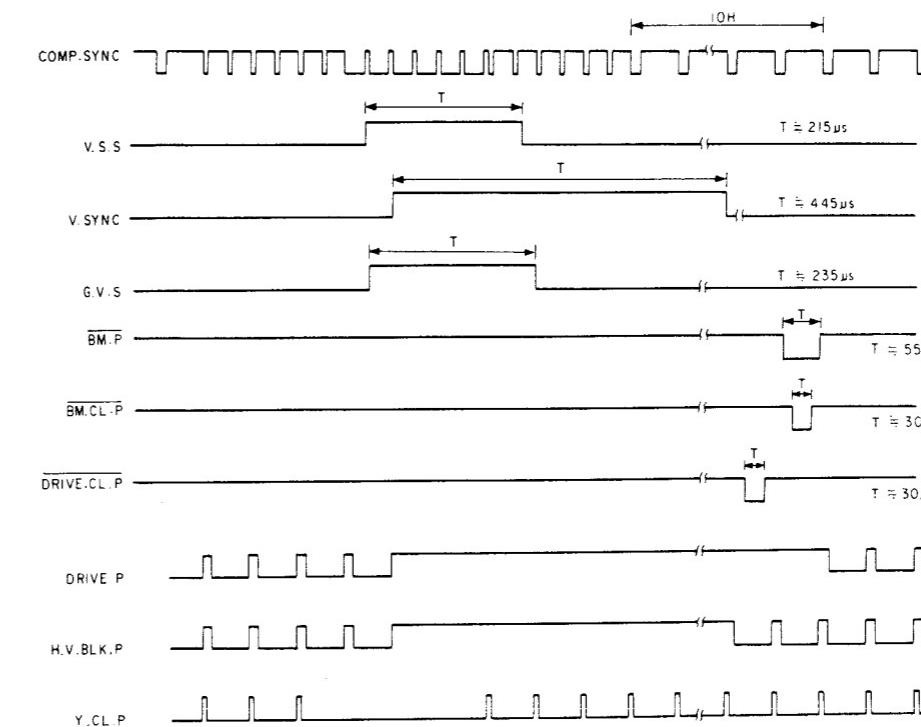


Figure 8

FIELD 2 VERTICAL BLANKING

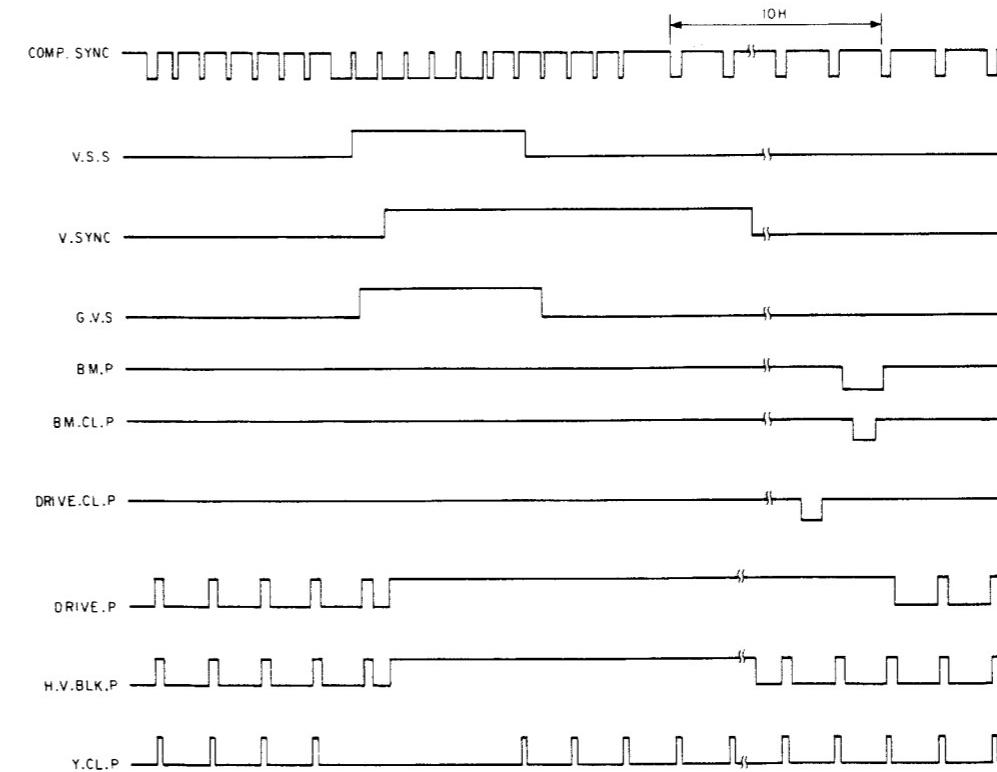


Figure 9

### 3-6. BK BOARD

Following are described about Red channel. Green and Blue channel are the same.

#### 3-6-1. Red Drive Amplifier, Red Buffer

This circuit drives final stage of video output amplifier. Gain is approx. 2

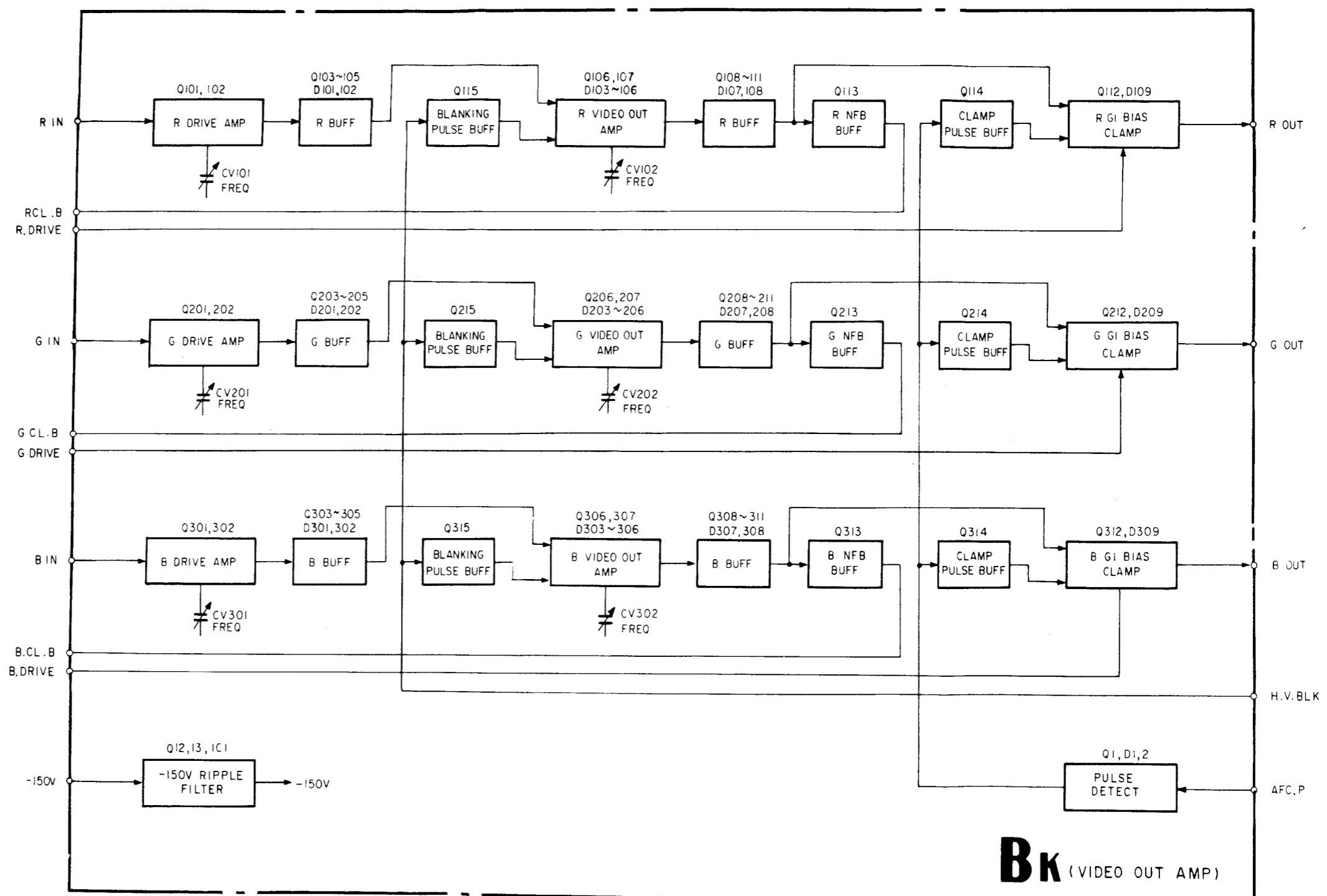
#### 3-6-2. Red Video Output Amplifier and Buffer

This is the final stage amplifier to obtain amplitude enough to drive G1 of CRT.

Gain is approx. 14

Also in this amplifier, BLANKING pulse is mixed with video signal.

BLOCK DIAGRAM OF BK BOARD



**3-7. BEAM CONTROL CIRCUIT (BI, BK BOARDS)**  
 (Same as Green and Blue)

Block diagram is shown in Figure 10.

**3-7-1. Detection of Cathode Current and I-V Conversion  
 (BI BOARD)**

Cathode current is detected as a voltage by using IC105 (1/2)

**3-7-2. Red G1 Bias Control (BI BOARD)**

BMP is inserted in the signal during vertical blanking in BI board.  
 This BMP is detected as a cathode current and sampled by BM CLP applied to FET Q113.

This bias control circuit controls the base voltage of transistor Q114 so that converted voltage from cathode current and the reference voltage may match.

**3-7-3. Red G1 Bias Clamp Circuit (BK BOARD)**

Video output signal is clamped at the voltage of collector of transistor Q114 in BI board by using transistor Q112.

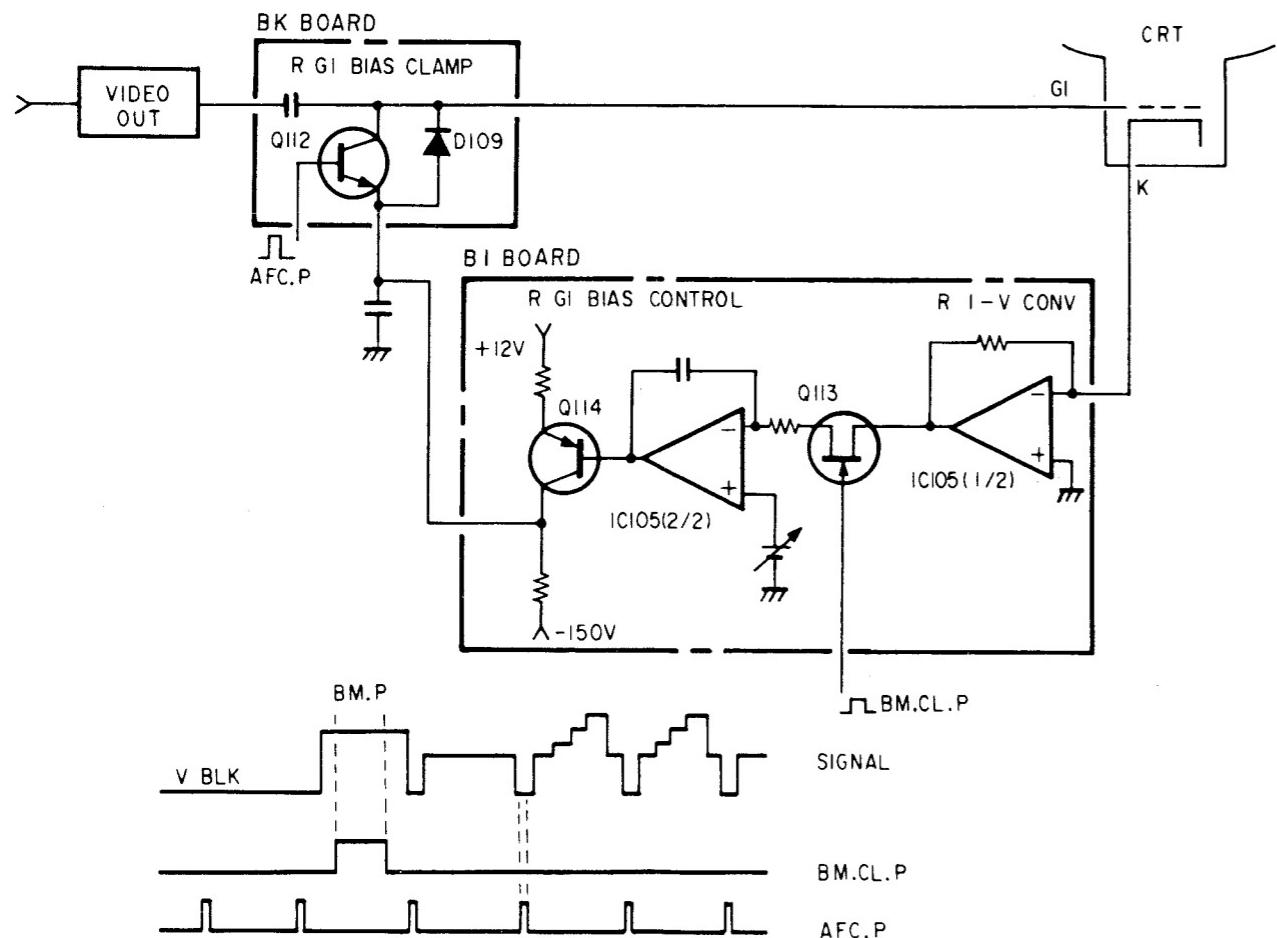


Figure 10

(BVM-1911 ONLY)

### 3-8. NTSC COMB FILTER (BT BOARD)

#### 3-8-1. 3 Line Dynamic Comb Filter (Fig. A)

The fed video signal is band limited by a low-pass filter. (This signal is hereinafter referred to as the OH signal.) The OH signal becomes the signal which is 1H (63.556  $\mu$ sec) delayed by the 1H delay circuit (1H delayed signal) and the signal which is 1H further delayed by the 1H delay circuit (2H delayed signal).

The OH, 1H, and 2H signals are band limited by the respective band-pass filters (center frequency: fs) for delay of  $\lambda/2$ (140 nsec). The 1H signal is further  $\lambda/2$  delayed. The OH+ $\lambda/2$ , 1H, 1H+ $\lambda/2$ , 1H+ $\lambda$  and 2H+ $\lambda/2$  (Ⓐ, Ⓑ, Ⓒ, Ⓓ and Ⓔ of the block diagram) at each point are separated into chroma signals only by the correlation circuit (IC501).

The luminance signal is separated with the chroma signal subtracted from the 1H signal.

#### 3-8-2. 2 Line Simple Comb Filter

The chroma signal is separated with the OH+ $\lambda/2$  and 1H+ $\lambda/2$  signal subtracted, and the luminance signal is separated by subtracting the chroma signal from the OH signal.

#### 3-8-3. 1H Delay Circuit (Fig. B)

The 1H delay circuit consists of two CCD delay lines. These CCD delay lines are used in parallel to attain 1H (63.556  $\mu$ sec) signal delay.

#### 3-8-4. Band-pass Filter (Fig. C)

The band-pass filter consists of a delay line. It performs band limiting with the group delay kept constant.

#### 3-8-5. Correlation Circuit (IC501) (Fig. D)

The correlation circuit consists of a limiter circuit which is common to emitters to perform separation of a chroma signal.

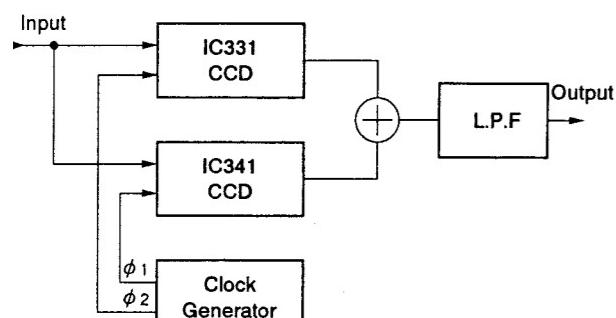


Figure B

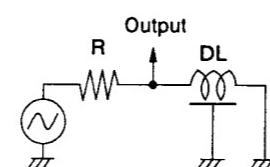


Figure C

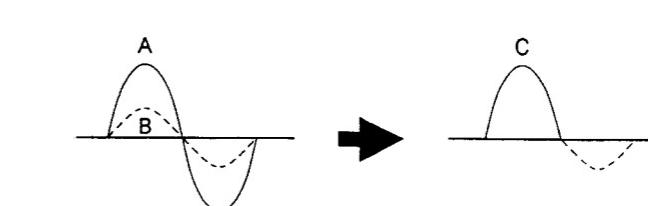
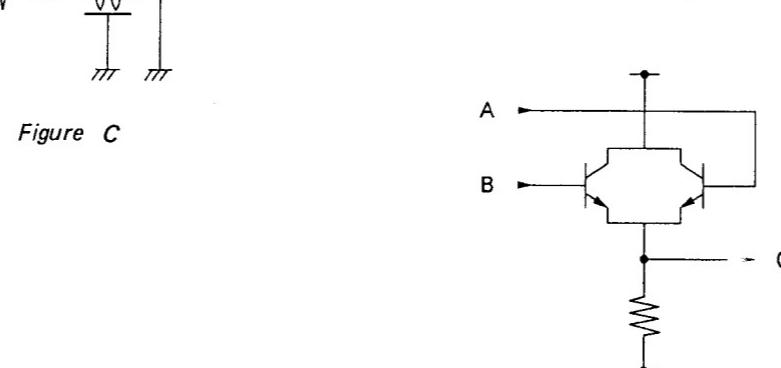


Figure D

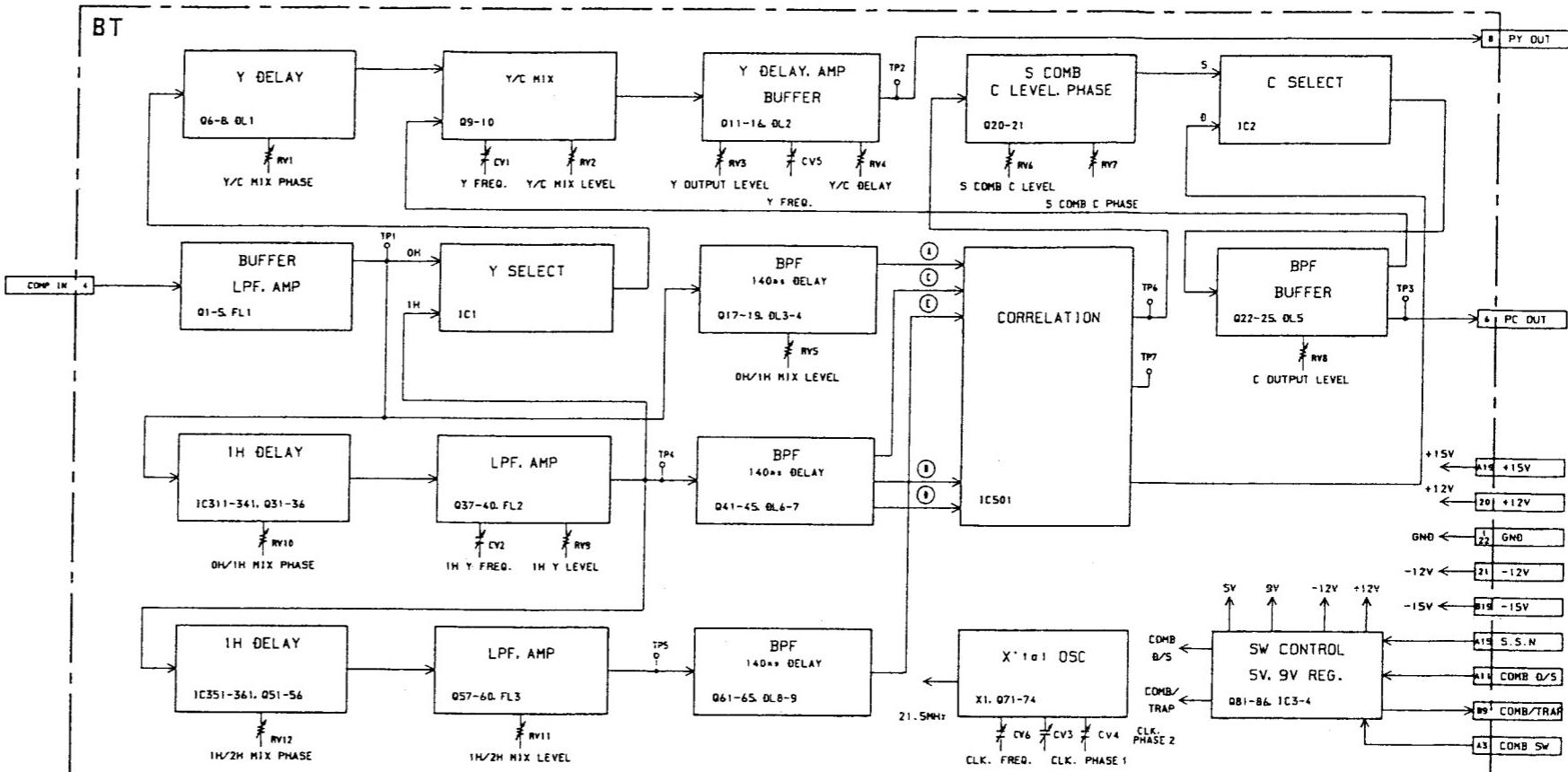


Figure A

(BVM-2011P ONLY)

### 3-9. PAL DEMODULATOR, Y TRAP CIRCUIT (BD BOARD)

The composite video signal (PAL) supplied from BA board is fed to transistor Q1 (buffer), then is supplied to the 4.43 MHz trap circuit with Y signal and to band pass filter with chrominance signal.

#### 3-9-1. Chroma Band Pass Filter

The composite video signal obtained from at the emitter of transistor Q1 is fed to the Band pass filter composed of resistor R12, capacitor C7, C8, inductor L3 and transistor Q5.

The center frequency of this filter is adjusted to the subcarrier frequency (4.43 MHz) by L3, and chrominance signal is derived from Q5.

#### 3-9-2. Residual SW Circuit

The chrominance signal derived at transistor Q5 is fed to analog switcher IC2.

When switch S1 on BJ board is set to ON position, residual pulse which has almost same phase as H sync is fed to control terminal of analog switcher (pin ③ of IC2) and screening is performed during H sync period.

When switch S1 on BJ board is set to OFF position, Low level signal (0V DC) is fed to control terminal and screening action is not performed. Thus residual switch circuit does not activate.

When there is residual subcarrier in the video signal, clamp level of color difference signal changes by turning switch S1 ON/OFF and therefore residual subcarrier can be checked on the picture as a color shift.

#### 3-9-3. Chroma Amplifier Circuit

The chrominance signal from residual switch circuit (IC2 pin ④) is fed to chroma amplifier circuit (Q19, Q36).

After the chroma signal is amplified by the inversion amplifier (gain: 1X), it is voltage divided by resistors R400 and R314 and then input to the R-Y input terminal (IC1, pin ③) and B-Y input terminal (IC1, pin ②) of the following demodulator circuit via the buffer (Q38).

#### 3-9-4. Phasa Control Circuit

The chrominance signal from residual switch is also fed to phase control circuit (Q6, Q7, Q8, Q9, D12).

In this circuit, a variable capacitance diode (D10) is used to control the phase of color burst signal.

Anode voltage of D10 is applied by variable resistor RV8 and preset adjustment of phase is made by this variable resistor.

When the PHASE control on the right side of the front panel is turned, DC level of phase control signal (board terminal A13) changes and this phase control signal is fed to the cathode of D10 via analog switcher (IC5). In this way, Burst phase of chrominance signal is controlled according to the DC level of the phase control signal.

When PAL-D is selected with the PAL switch inside the right side drawer, between pins ③ and ④ of IC5 becomes conductive and phase control becomes dependent on RV7, disabling the Phase Control of the right side front panel.

Analog switcher IC5 (1/3) activates to make short-circuit between input terminal pin ③ or ⑤ and output terminal pin ④, only when COLOR STANDARD SELECTOR in the right side of drawer is selected to PAL and otherwise pin ⑤ kept open circuit.

As above phase controlled chrominance signal is derived from collector of transistor Q9 and burst signal in this signal is gated by IC6. The gated burst signal is fed to the burst input terminal pin ⑪ of demodulator IC1.

#### 3-9-5. PAL Demodulator

Block diagram of IC used for PAL demodulator is shown in Figure E. This IC is designed for use of NTSC demodulator.

When chrominance signal is fed to pin ② and pin ③, color burst signal to pin ⑪ and Burst Gate Pulse (B.G.P.) to pin ⑬, R-Y and B-Y color difference signals are obtained at output terminals pin ⑫ and pin ⑭.

The demodulation axes of this demodulator are R-Y axis and B-Y axis. Variable capacitor CV1 is adjusted so that the phase angles between them are 90°.

Local oscillator (4.43 MHz) is formed by CW oscillator in IC1 connected to the terminal pin ⑤, ⑥, ⑦, ⑧ and external circuit.

The variable capacitor CV2 is adjusted so that the free run frequency may be subcarrier frequency 4.433619 MHz.

Also APC (Automatic Phase Control) circuit is formed by APC section in IC1 connected to the terminal pin ⑨ and ⑩ local oscillator is controlled by APC circuit.

The color difference signals demodulated by this IC are fed to low pass filter, where high frequency component is removed, then R-Y and B-Y color difference signals are obtained.

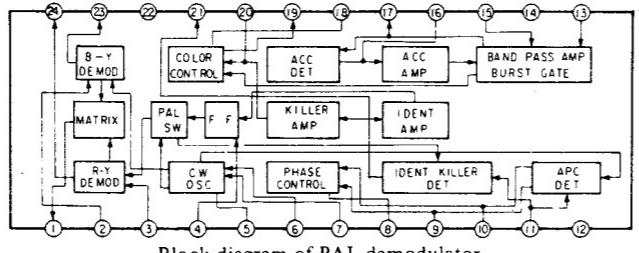


Figure E

#### 3-9-6. PAL-D Matrix and PAL S/D Switching Circuit

This circuit is further divided into circuits for the R-Y and B-Y signals, but the operation of both circuits is the same. So only the R-Y one will be explained.

R-Y signals input from the demodulator circuit are input to Q20 (BUFF) and Q21 (BUFF).

The signals input to Q21 are then input to pin ② of the analog switcher (IC5). When PAL S has been selected, between pins ② and ⑮ becomes conductive and the signals are supplied to the following circuit via Q33 (BUFF).

The signals input to Q20 are formed by IC7 and Q18.

Bias is controlled by a clamp circuit and is input to pin ⑯ of the 1H delay line (IC3). The DC level of the input is adjusted to the optimum value by using RV9.

IC3, driven by the 10.64 MHz clock signal generated by the clock generator circuit configured with XZ, Q34 and Q35, delays the input signal by 1H cycle and outputs it from pin ⑪.

The high frequency component of the signal thus output is removed by the low-pass filter configured with Q22 and Q23, after which the signal is input to the following PAL-D matrix circuit.

The PAL-D matrix circuit is configured with R100, R101 and Q24. The signal that was not delayed is input through R100 while the 1H delayed signal is input through R101 at a ratio of 1/2.

The PAL-D signal added to the base of Q24 is obtained from its emitter. The signal obtained from the Q24 emitter is input to pin ① of IC5. When PAL-D is selected, between pins ① and ⑮ becomes conductive and the signal is supplied to the following circuit via Q33 (BUFF).

#### 3-9-7. 4.43 MHz Trap Circuit, Phasa Compensation, Y Delay Connection Circuit

The composite video signal from the emitter of transistor Q1 is fed to 4.43 MHz trap circuit composed of resistor R5, R6, R7, capacitor C1, C2 and inductor L1.

Adjustment of L1 is made so that the resonance frequency of this trap circuit should be subcarrier frequency.

Y (Luminance) signal removed subcarrier is obtained at output terminal of the trap circuit and is fed to the phase compensation circuit. (Transistor Q2, resistor R8, R9 R10, inductor L2 capacitor C4)

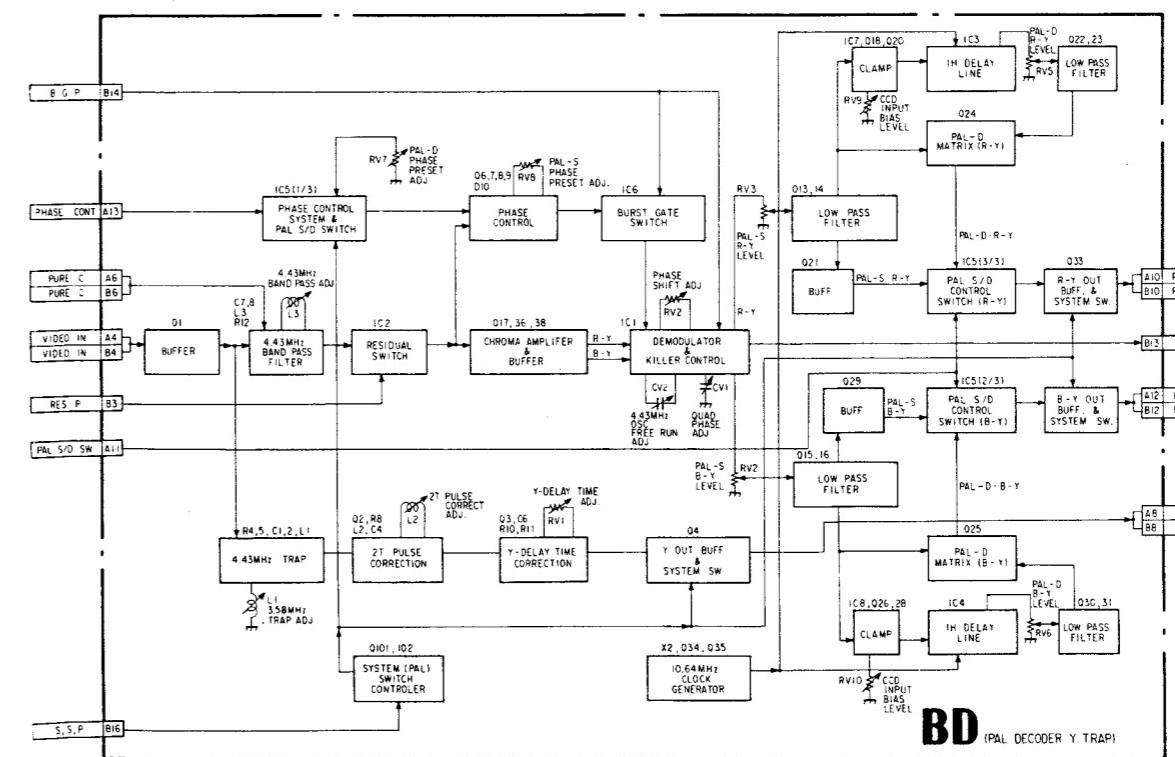
This circuit compensates phase delay of the signal at high frequency due to the trap circuit.

Y signal compensated phase delay is fed to Y-delay circuit. In this circuit Luminance/Chrominance time error is compensated by delay line.

#### 3-9-8. Color Standard Selector

When PAL system is not selected by the COLOR STANDARD SELECTOR in the right side drawer, transistor Q101, Q102 are cut off and ±12V line power source is not supplied to the demodulator circuit.

#### BLOCK DIAGRAM OF BD (PAL) BOARD



(BVM-1911 ONLY)

### 3-10. NTSC DEMODULATOR, Y TRAP CIRCUIT (BC BOARD)

The composite video signal (NTSC) supplied from BA board is fed to transistor Q1 (buffer), then is supplied to the 3.58MHz trap circuit with Y signal and to band pass filter with chrominance signal.

#### 3-10-1. Chroma Band Pass Filter

The composite video signal obtained from at the emitter of transistor Q1 is fed to the Band pass filter composed of resistor R18, capacitor C7, C8, inductor L3 and transistor Q5.

The center frequency of this filter is adjusted to the subcarrier frequency (3.58MHz) by L3, and chrominance signal is derived from Q5.

This circuit selects comb filter (BB board) mode or notch filter mode by a push of button on the front panel. When comb filter mode is selected, comb switch circuit composed of transistor Q103 and Q104 activates and base voltage of Q5 goes down to -12V and Q15 is cut off and then chrominance signal (Pure C) is provided from comb filter circuit to IC2.

#### 3-10-2. Residual SW Circuit

The chrominance signal derived at transistor Q5 is fed to analog switcher IC2 (Pin 7).

When switch S1 on BJ board is set to ON position, residual pulse which has almost same phase as H sync is fed to control terminal of analog switcher (pin ③ of IC2) and screening is performed during H sync period.

When switch S1 on BJ board is set to OFF position, Low level signal (0V DC) is fed to control terminal and screening action is not performed. Thus residual switch circuit does not activate.

When there is residual subcarrier in the video signal, clamp level of color difference signal changes by turning switch S1 ON/OFF and therefore residual subcarrier can be checked on the picture as a color shift.

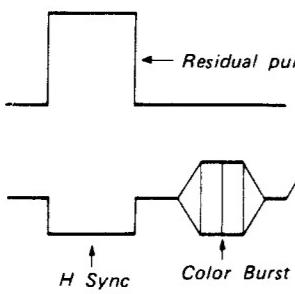


Figure 15

#### 3-10-3. Chroma Amplifier Circuit

The level of chrominance signal from residual switch circuit (IC2 pin ④) is divided by resistor R85 and R86 and is fed to chroma amplifier circuit (Q6, Q7, Q8).

The gain of this amplifier is almost 1 and this amplifier has 2 outputs. They are non-inverted signal and inverted signal.

Non-inverted signal is fed to R-Y input terminal (IC1 pin ③) of demodulator and inverted signal to B-Y input terminal (IC1 pin ②).

#### 3-10-4. Phasa Control Circuit

The chrominance signal from residual switch is also fed to phase control circuit (Q9, Q10, Q11, Q12, D2).

In this circuit, a variable capacitance diode (D2) is used to control the phase of color burst signal.

Anode voltage of D2 is applied by variable resistor RV2 and preset adjustment of phase is made by this variable resistor.

When the PHASE control on the right side of the front panel is turned, DC level of phase control signal (board terminal A13) changes and this phase control signal is fed to the cathode of D2 via analog switcher (IC2 Pin ③). In this way, Burst phase of chrominance signal is controlled according to the DC level of the phase control signal.

Analog switcher IC3 (2/3) activates to make short-circuit between input terminal pin ⑬ and output terminal pin ⑭, only when COLOR STANDARD SELECTOR in the right side of drawer is selected to NTSC and otherwise pin ⑬ kept open circuit.

As above phase controlled chrominance signal is derived from emitter of transistor Q12 and burst signal in this signal is gated by IC3 (1/3). The gated burst signal is fed to the burst input terminal pin ⑪ of demodulator IC1.

#### 3-10-5. NTSC Demodulator

Block diagram of IC1 used for NTSC demodulator is shown in Figure 16. This IC is designed for use of NTSC demodulator.

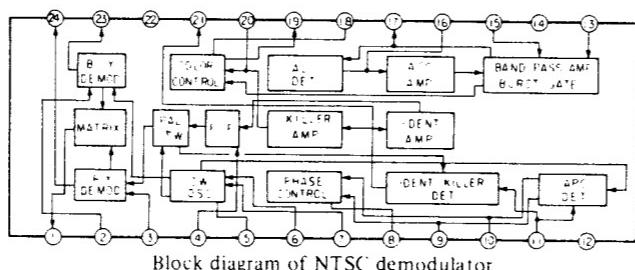
When chrominance signal is fed to pin ①, ② and pin ③, color burst signal to pin ⑪ and Burst Gate Pulse (B.G.P.) to pin ⑬, R-Y and B-Y color difference signals are obtained at output terminals pin ⑤ and pin ⑩.

The demodulation axes of this demodulator are R-Y axis and B-Y axis. Variable capacitor CV1 is adjusted so that the phase angles between them are 90°.

Local oscillator (3.58MHz) is formed by CW oscillator in IC1 connected to the terminal pin ⑤, ⑥, ⑦, ⑧ and external circuit. The variable capacitor CV2 is adjusted so that the free run frequency may be subcarrier frequency 3.579545MHz.

Also APC (Automatic Phase Control) circuit is formed by APC section in IC1 connected to the terminal pin ⑨ and ⑩ local oscillator is controlled by APC circuit.

The color difference signals demodulated by this IC are fed to low pass filter, where high frequency component is removed, then R-Y and B-Y color difference signals are obtained.



### 3-11. VERTICAL DEFLECTION OUTPUT CIRCUIT CONVERGENCE OUTPUT CIRCUIT (EB BOARD)

#### 3-11-1. Vertical Deflection Output

Vertical Deflection Output amplifier is composed of DC coupled SEPP (single Ended Push Pull) amplifier (Q1~Q5) and boost up circuit.

This boost up circuit contains transistors Q7 and Q8 to reduce power consumption by applying the voltage to the output transistor during vertical retrace time.

Both vertical rate sawtooth waveform and correction waveform for top and bottom pincushion are generated in DA board and fed to output amplifier. Vertical centering is performed by changing DC level of vertical rate sawtooth because Vertical DY (Deflection Yoke) is connected to output amplifier directly.

#### 3-11-2. Convergence Yoke Output Circuit

CY (Convergence Yoke) is used for adjustment of misconvergence of vertical direction. This CY is driven by SEPP (single ended push pull) amplifier (Q9~Q13) and connected directly. Correction waveform is provided from DB board.

#### 3-11-3. DCT (Dynamic Convergence Transformer) Output Circuit

This circuit is used for adjustment of misconvergence for Horizontal direction.

DCT is also driven by SEPP amplifier (Q14~Q19) and AC coupled to it.

Correction waveform is provided to the primary of DCT and transferred to the secondary windings, output voltage of secondary windings is applied to CV electrode of CRT (picture tube) and performed convergence adjustment. circuit diagram shown in Figure 17 is the theory of basic DCT circuit.

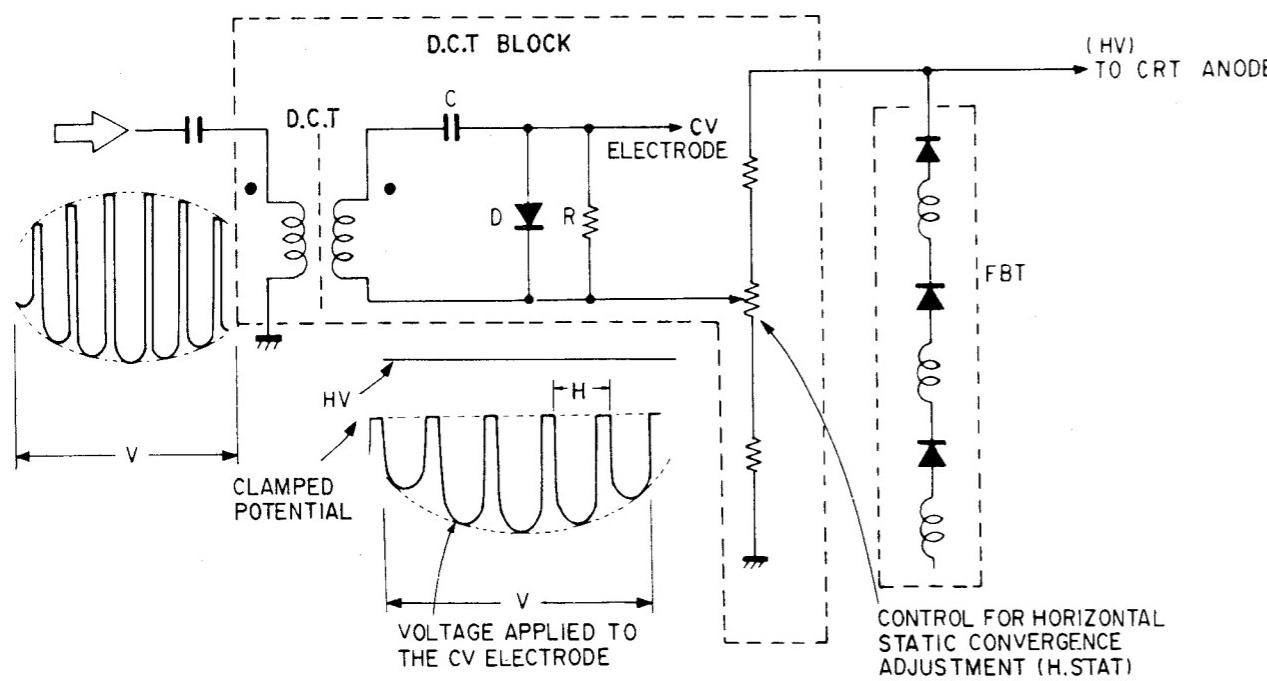
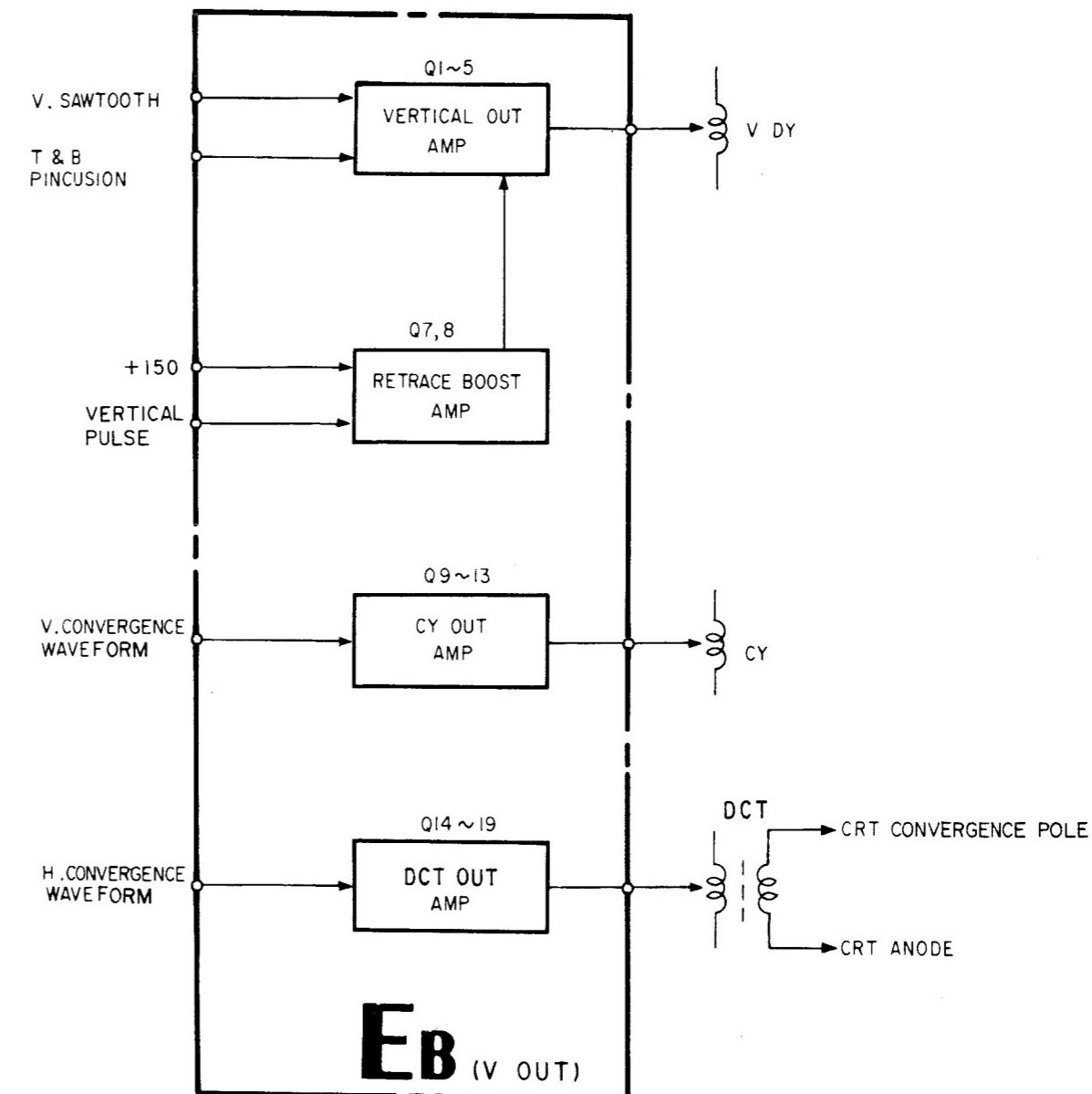


Figure 17

#### BLOCK DIAGRAM OF EB BOARD



### 3-12. POWER SUPPLY CIRCUIT (GA, GB BOARDS)

#### 3-12-1. AC Power Supply, Rectifier Circuit

Voltage selector located at the rear side of the unit should be selected to the local line voltage (AC 100/120V or 220/240V).

In case of AC 100/120V selected by voltage selector, rectifier D21 capacitors C80 and C81 operate as a double multiple rectifier.

See Figure 18(a).

In case of AC 220/240V selected by voltage selector, rectifier D21 capacitors C80 and C81 operate as a full-wave rectifier.

See Figure 18(b).

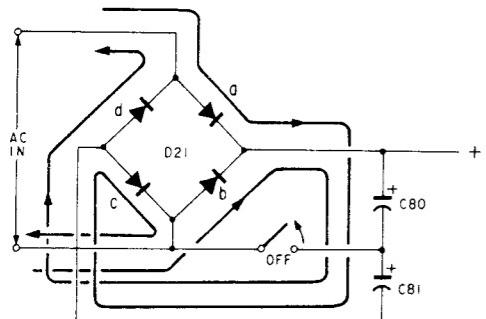


Figure 18(a)

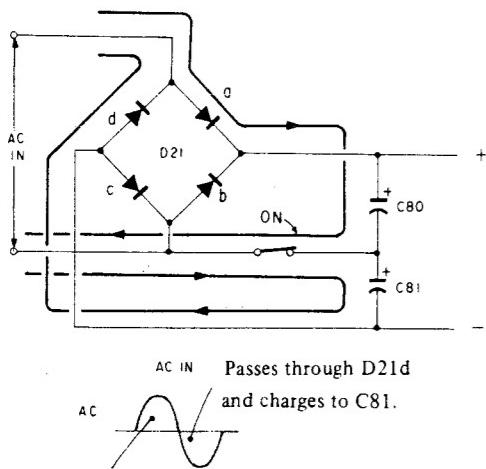


Figure 18(b)

#### 3-12-2. Degauss Circuit

There are 2 positors (PTH1, PTH2) in the degaussing circuit. One is used for AC 100/120V operation, the other is for AC 220/240V operation, these positors are switched by voltage selector. This degaussing circuit is turned ON and OFF by using Relay (RY1) automatically.

When power is turned ON, Automatic degaussing starts to work and a few seconds later stops automatically. Also Manual degaussing is available if necessary after a few minutes power is turned on when positior (PTH1 or PTH2) gets cool down. This manual degaussing is operated by a push of button (Degauss Switch) at the left of the front panel.

When degaussing circuit starts to work, Q11 transistor turns on by time constant circuit composed of resistors R88, 91 and capacitor C74. Q11 drives Q12 transistor. Relay (RY1) is driven by Q12. Time constant circuit keeps degaussing circuit to activate for several seconds until degaussing is finished.

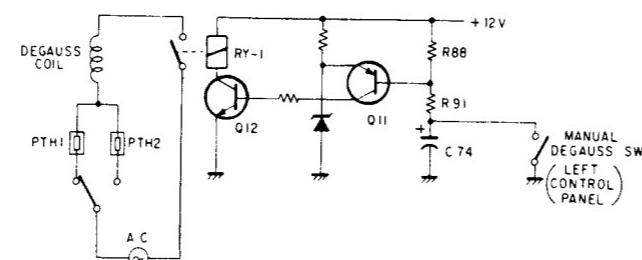


Figure 19

#### 3-12-3. Starter Circuit

Blocking oscillator composed of IC1 and T4 starts working by turning the power on. DC output voltage of the rectifying-circuit, D7 and C57 in T4 secondary circuit, is supplied to the regulator-circuit IC (IC2 and IC3) with line voltage of 50 to 70V AC (at 110/120V AC) by function of the start-rectifying circuit (Q7, Q8, Q9). And the regulator circuit starts working and as +15V-line works, the voltage is supplied to the regulator-circuit IC through D20. At the same time, a voltage for stopping the blocking-oscillator operation is provided to IC1 from the primary winding(6) – (7) of the switching regulator transformer SRT2.

#### 3-12-4. Switching Regulator Circuit

Block diagram is shown in Figure 20. This is half bridge type of switching regulator in this model.

#### Following Description is the Theory of Half-Bridge Switching Regulator.

DC voltage  $E_{IN}$  rectified from AC voltage in AC power rectifier section is divided by capacitor C1 and C2. C1 and C2 have almost same value. Q1 (contains 2 transistors) operates as a switch driven by PWM modulated pulse via T2 (Drive Transformer). Switching current flows through primary windings of T1 (SRT) by switching transistor Q1 via T3 (Current Transformer). Thus output voltages are generated at secondary windings of T1.

#### Practical Circuit Used in this Model

There are 2 switching regulators in this power supply. One is for low voltage power supply, +15V, +18V and +5V. The other is for high voltage +150V power supply.

Low voltages are generated by IC2, T1, T2, T3 and Q1.

High voltages are generated by IC3, T6, T7 and Q2

Refer to block diagram

Current Transformer T3 and T7 detects excess current in transistor Q1 and Q2 for the protection of damage.

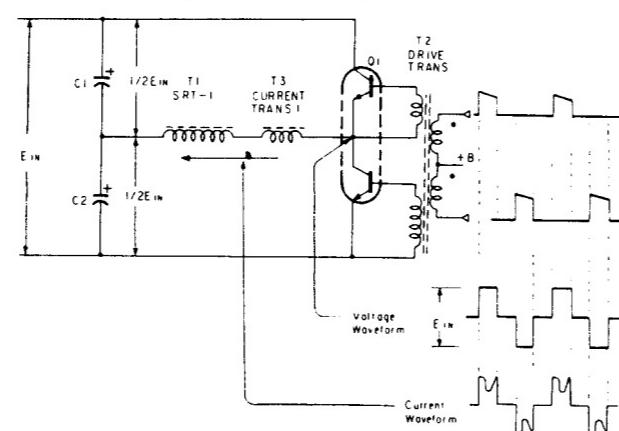
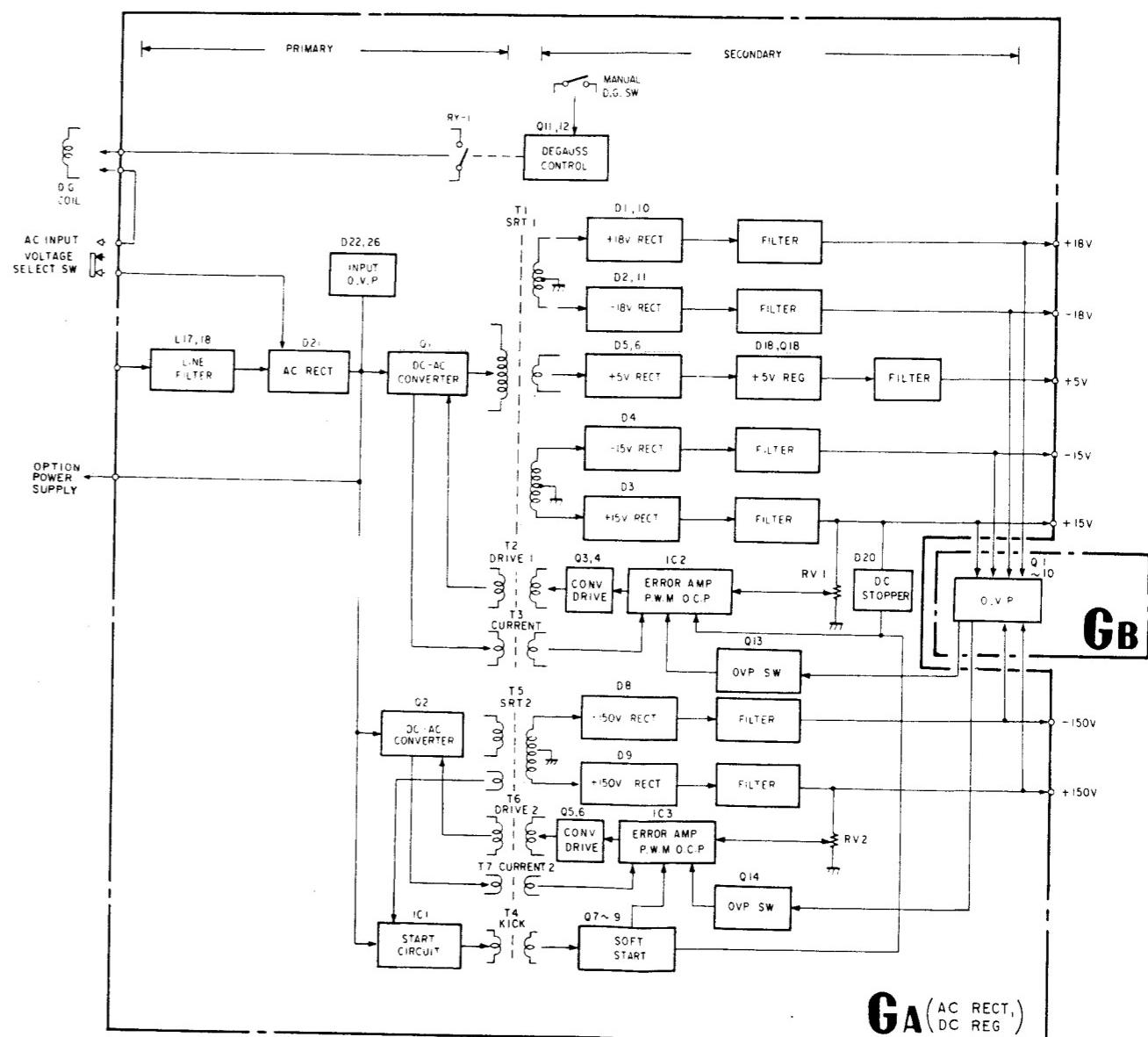


Figure 20

#### 3-12-5. Over Voltage Protector

GB board, mounted on the GA board, is a protection circuit that when the output voltage surpasses the rated value for some reason, it makes short-circuit the CT (frequency-determination capacitor) on IC2 and IC3 and the regulator stops its operation to protect the circuits.

#### BLOCK DIAGRAM OF GA, GB BOARDS



### 3-13. CONVERGENCE CIRCUIT (DB, DC BOARDS, DCT BLOCK)

#### 3-13-1. General Description

This is a simple explanation of the convergence system in Super fine Trinitron picture tube used in this model.

The Deflection Yoke (DY) used in this model generates an almost uniform magnetic field in order to get fine beam spot size. Accordingly basically misconvergence of horizontal direction as shown in Figure 21 is generated on the picture screen.

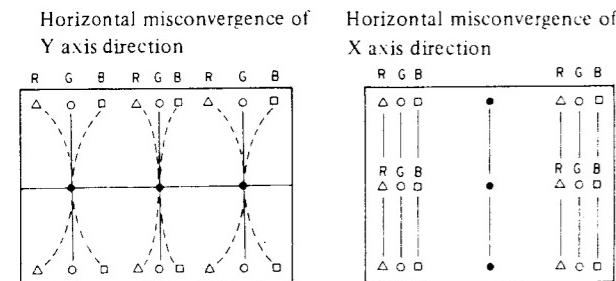


Figure 21

#### 3-13-2. Static Electrical Convergence System

Trinitron system has a unique static convergence system. The structure of electric gun is shown in Figure 22.

G6 is the electrode for convergence. Static electrical convergence control can be used. In this system beam spot deterioration is less than that of the electromagnetic system.

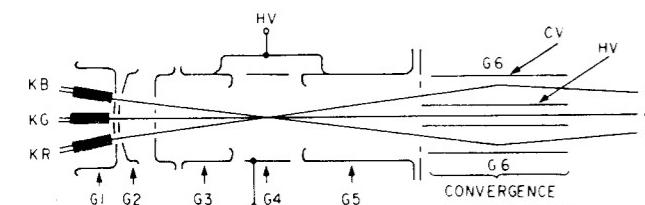


Figure 22

#### 3-13-3. Convergence Correction Circuit (Horizontal Convergence)

Misconvergence of horizontal direction on Y axis is corrected by applying vertical rate parabola waveform to the convergence plate (G6).

And misconvergence of horizontal direction is corrected by applying horizontal rate parabola waveform to G6. See Figure 23.

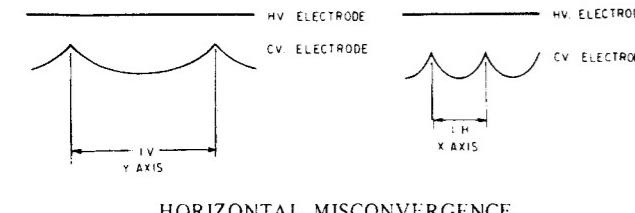


Figure 23

In this model, transformer is used to supply correction voltage to the G6 electrode for the horizontal direction misconvergence. In the secondary of the transformer peak clamp circuit using diode is applied so that both the vertical rate parabola waveform and horizontal rate parabola waveform are mixed and supplied to CV electrode. See Figure 24.

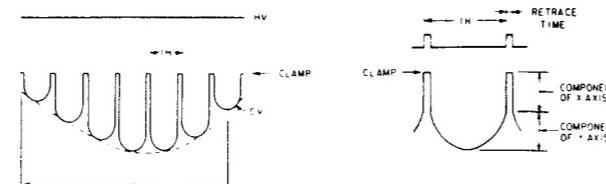


Figure 24

The correction waveforms are generated in DB board and output amplifier is located in FB board.

#### 3-13-4. Vertical Convergence

Theoretically there is no misconvergence of Vertical direction since electric gun is aligned in line. But there is a slight amount of misconvergence due to the variations of CRT and DY and also due to the terrestrial magnetism.

There are also 2 kinds of misconvergence of vertical direction on X axis and Y axis as same as horizontal direction.

Misconvergence of Vertical direction on X axis is corrected by CY (convergence yoke).

Figure 25 shows the CRT neck as seen from the rear side.

Red beam and Blue beam are moved to the vertical direction differentially by CY. As Green beam is at the center of the CRT neck, it is not affected by the magnetic field of CY due to the cancellation of the magnetic field at the center of the neck.

Misconvergence of vertical direction on Y axis is corrected by NTC (Neck Twist Coil).

A Neck Twist Coil is wound around the center of electrode G2 ~ G3 (See Figure 25) for the correction. Theoretically, as the RED and Blue beams have HI component (They are opposite direction) as seen in Figure 25, they move to the vertical direction due to the magnetic field generated by NTC.

However as magnetic field of the NTC is the parallel to the Green beam, Green beam is not affected.

Correction waveform generator is located in DB board, output amplifier of CY is in EB board and output amplifier of NTC is in DB board.

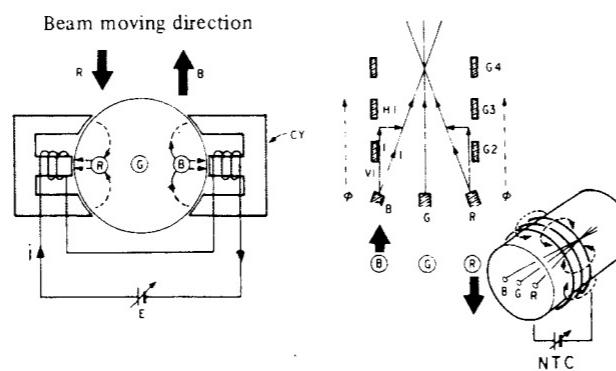
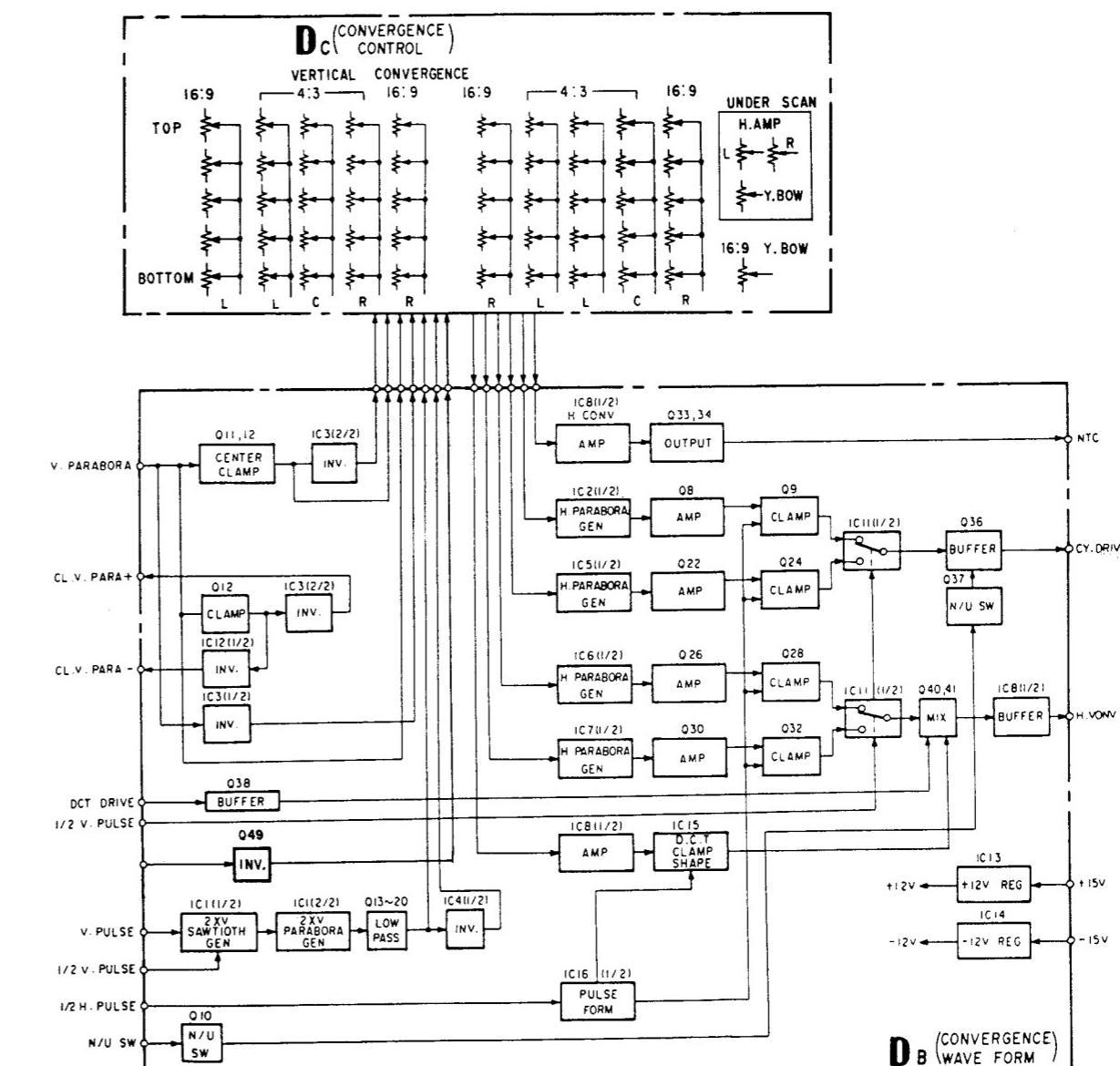


Figure 25

#### BLOCK DIAGRAM OF DB, DC BOARD



### 3-13-5. Convergence Correction Waveform Generator (DB BOARD)

This monitor incorporates unique convergence circuit which can adjust convergence at 15 positions of the picture screen, each 15 potentiometers for horizontal and vertical convergence adjustments are located on the left side of the drawer corresponding to the picture screen.

### 3-13-6. Horizontal Convergence Correction Waveform Generator

A vertical rate parabola waveform is supplied to the DB board from the DB board and is inverted and switched to make correction waveform.

For the left side of the picture screen, the correction waveform is compounded by adjusting potentiometers RV16 ~ RV20 on the DC board. This waveform is converted to horizontal rate parabola waveform which level is proportional to the compounded waveform by H parabola generator (IC6, Q25). This is amplified by transistor Q26 and clamped at the center position of the horizontal period by transistor Q28 and IC6. See Figure 26.

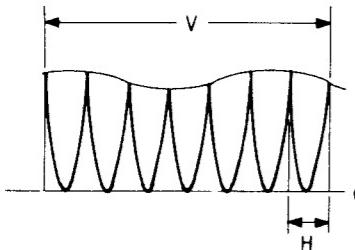


Figure 26

For the right side of the picture screen, the correction waveform is generated by adjusting potentiometers RV26 ~ RV30 on the DC board as same as the left side of the picture.

These correction waveforms (left and right side) are switched and mixed by analog switcher which activates at  $1/2H$  period as seen in Figure 27.

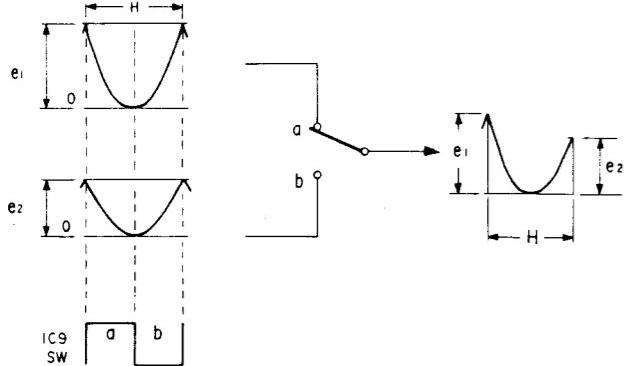


Figure 27

As a result, right side adjustments and left side adjustment can be performed independently of each other.

For the center of the picture screen, vertical parabola waveform is compounded to the correction waveform by adjusting potentiometers RV21 ~ 25 on the DC board, and converted to horizontal pulse. This means amplitude of horizontal pulse is modulated by vertical parabola. (Q40, Q41) See Figure 24.

This modulated pulse is mixed with horizontal parabola for left and right side correction. This mixed waveform is amplified and supplied to convergence plate in CRT via DCT. Thus horizontal convergence is corrected. See Figure 28.

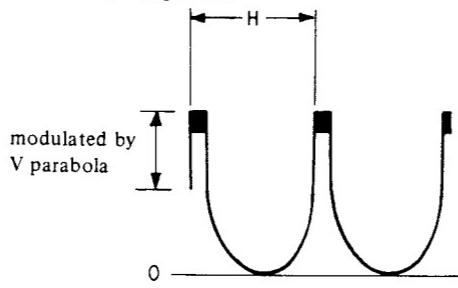


Figure 28

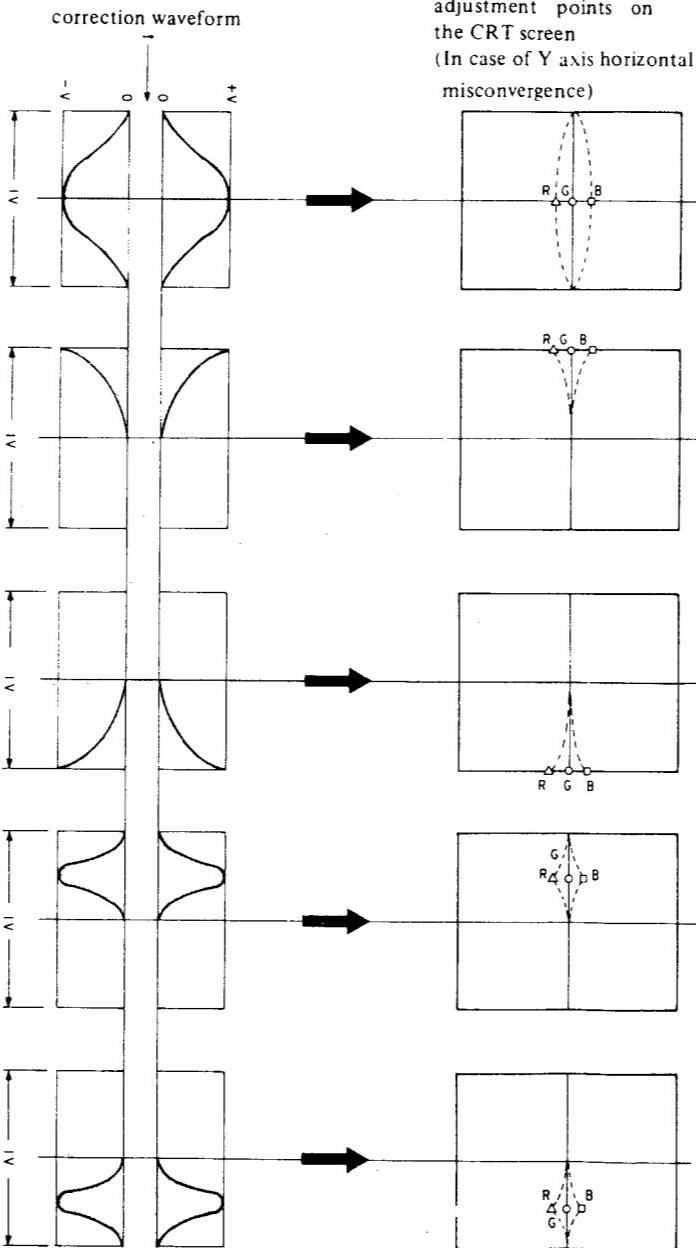


Figure 29

### 3-13-7. Vertical Convergence Correction Waveform Generator

For the left and right side of the picture, correction circuit for vertical convergence is same as horizontal correction circuit of left and right side of the picture. The correction waveform is amplified in EB board and supplied to CY.

For the center of picture screen, correction waveform is fed to amplifier (IC8 (1/2), Q33 Q34) and supplied to NTC (Neck twist Coil).

This vertical convergence is performed.

Diagram of correction waveform generation

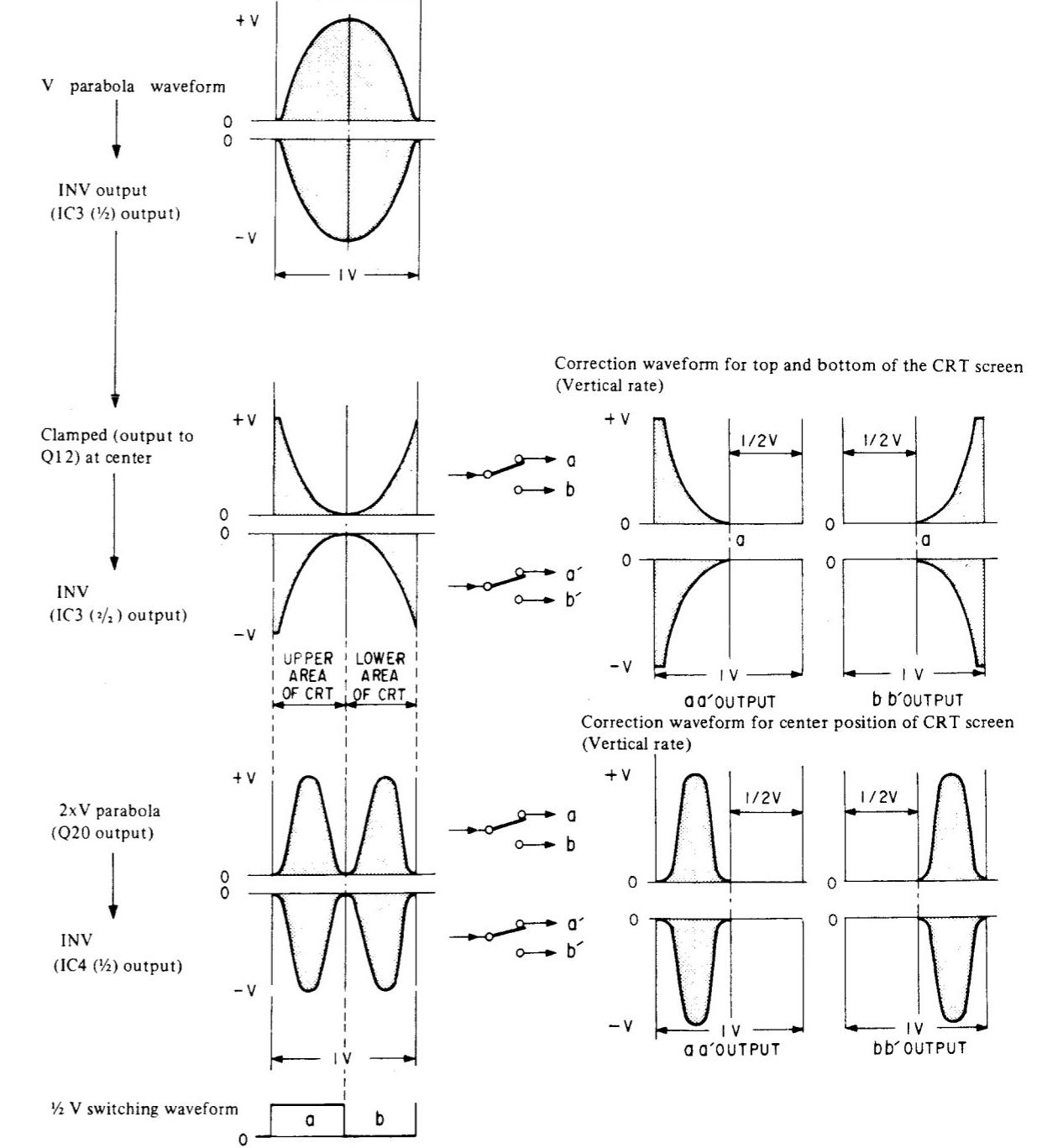


Figure 30

### 3-14. DEFLECTION CIRCUIT (DA BOARD)

#### 3-14-1. H Delay and Horizontal AFC (Automatic Frequency Control) Circuit

In this model H delay function is performed by delaying H. AFC pulse in the horizontal AFC circuit. (See Figure 31) H. AFC pulse which is fed from H.O.T. (Horizontal Output transformer) is wave shaped and is delayed about 20  $\mu$ s by IC1 (2/2). This delayed pulse is integrated by inductor L1, and capacitor C14, thus sawtooth waveform is obtained and fed to terminal pin ④ of IC4. AFC detection is performed by IC4. Output of AFC detector is fed to control terminal of horizontal oscillator (H.OSC) via low pass filter composed of capacitor C12, C15 and resistor R10. 3 types of AFC mode are selected by changing low pass filter which determines AFC time constant. AFC time constant circuit is composed of switch S1, resistor R13, R14, R15 and capacitor C17, C18.

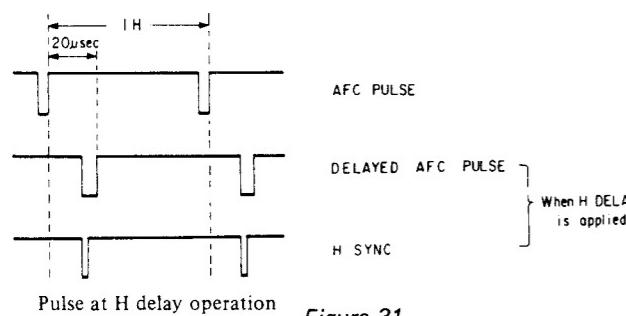


Figure 31

#### 3-14-2. Horizontal Linearity Correction Circuit

In this model Horizontal Linearity correction is made by applying correction voltage to the Horizontal deflection circuit. Basically, Linearity correction is made by modulating power source of horizontal output circuit with horizontal sawtooth voltage. Also So-called "Inside pincushion" correction is performed by applying correction waveform to S correction capacitor. This correction waveform is generated by balanced modulator (IC7) with vertical rate parabola waveform. See Figure 32. Horizontal sawtooth waveform is generated by IC5 (1/2) for horizontal linearity correction. Horizontal rate parabola waveform is generated by integration of saw tooth by IC6 (1/2). This parabola waveform is performed balanced modulation by IC7 with vertical rate parabola waveform, horizontal sawtooth and parabola waveform are fed to horizontal linearity output amplifier in EA board. Correction of horizontal linearity correction and inside pincushion correction are performed.

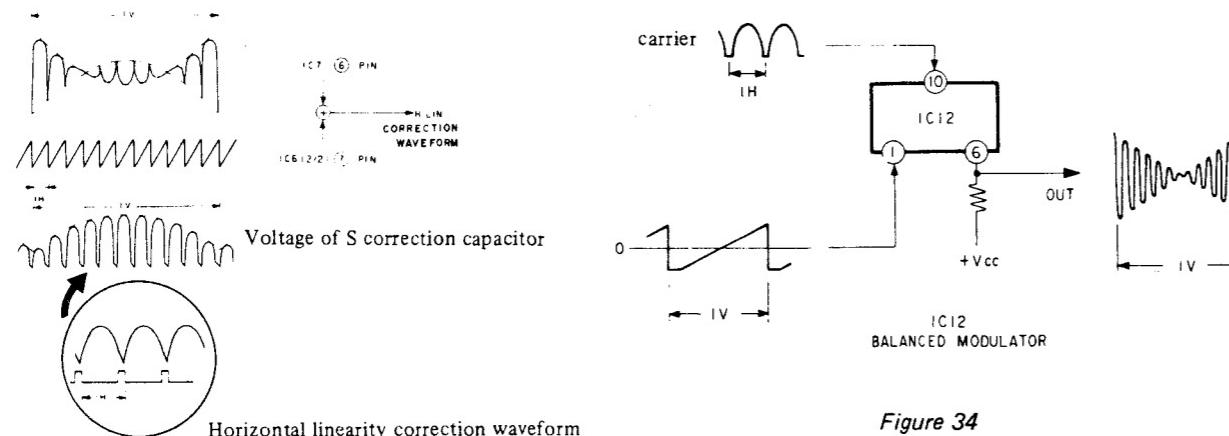


Figure 32

#### 3-14-3. Horizontal Blanking Pulse Generator

Horizontal rate sawtooth waveform generated in H. Linearity circuit is fed to the comparator IC8 (1/2). In this circuit, 1/2H delayed pulse is obtained. This pulse is fed to integrator IC9 (1/2) and 1/2H delayed sawtooth waveform is obtained and this is fed to the comparator IC10 (1/2). Thus the comparator generates horizontal pulse to make H. Blanking pulse which starts just before the starting edge of the retrace time. Also width of horizontal blanking pulse is determined by JK-FF IC1 (1/2).

**Figure 33:** Horizontal Blanking Pulse Generator

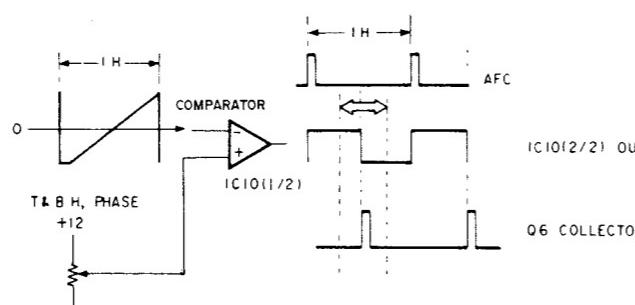


Figure 33

#### 3-14-4. Top & Bottom Pincushion Circuit

Horizontal rate sawtooth waveform generated in H Linearity circuit is also fed to IC10. IC10 generates advanced H pulse for the phase correction because vertical Deflection Yoke works as an integrator at horizontal rate, and deflection current for Top & Bottom pincushion correction is delayed about 1/2H for this reason. See Figure 33.

Advanced H pulse is fed to IC11 (1/2) and advanced horizontal sawtooth waveform is generated. It is integrated by IC11 (2/2) and horizontal rate parabola waveform is obtained. Modulated butterfly waveform for Top & Bottom pincushion correction is obtained by Balanced modulator IC12. In this balanced modulator, horizontal rate parabola waveform is used as a carrier and vertical rate sawtooth waveform is modulated by this carrier. See Figure 34.

This correction waveform is fed to vertical deflection output amplifier. Balance adjustment of vertical linearity correction can be performed by IC22 (1/2) and vertical centering can be adjusted by IC22 (2/2).

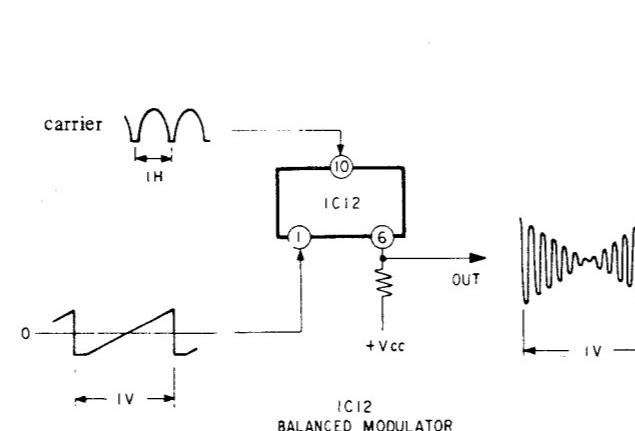


Figure 34

#### 3-14-5. Automatic 50/60Hz Field Selection Circuit

This model has an automatic vertical field frequency selection circuit so that color systems with different frequencies such as NTSC or PAL and SECAM can be received. IC18 is automatic field frequency detection device and its output switches (IC13) time constant of integrator in vertical deflection circuit.

#### 3-14-6. Scan Mode Selection Circuit

There are 3 modes of scanning in this model: NORMAL SCAN/ UNDER SCAN/SET UP SCAN.

There are level adjustments for H1 width, V, height side pincushion and top & bottom pincushion.

Levels of correction waveforms are switched so that these adjustments are made independently for each scanning mode. IC14, IC15 and IC16 activates for this purpose.

#### 3-14-7. Vertical Deflection, Side Pincushion Correction

IC19 (1/2) generates vertical rate sawtooth waveform for vertical deflection. V sawtooth waveform is generated by the integrator IC9 (1/2) which is reset by V sync.

Also vertical rate parabola is generated by integrating V. sawtooth waveform by IC9 (2/2).

This V parabola is used for side pincushion correction, and also V. parabola is converted to sine waveform by IC20 (1/2) and is mixed with V parabola waveform. This mixed waveform is used for side pincushion correction and fed to side pincushion output amplifier in EA board.

Vertical drive voltage for vertical deflection is generated by mixing vertical rate sawtooth waveform generated by IC19 (1/2) and sine waveform generated by IC22 (1/2).

This drive waveform is fed to vertical deflection output amplifier. Balance adjustment of vertical linearity correction can be performed by IC22 (1/2) and vertical centering can be adjusted by IC22 (2/2).

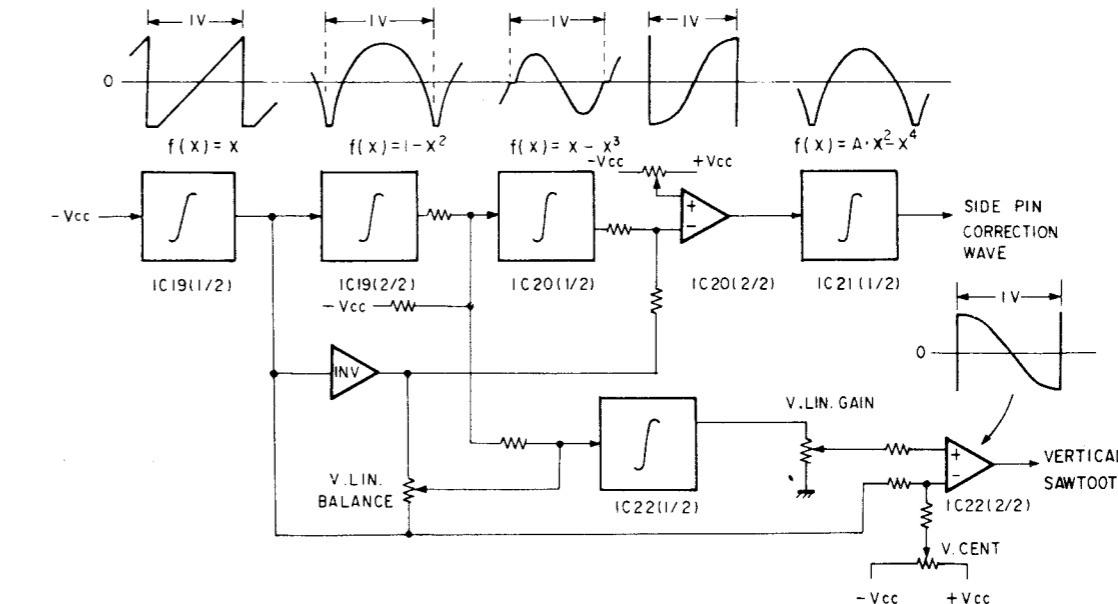
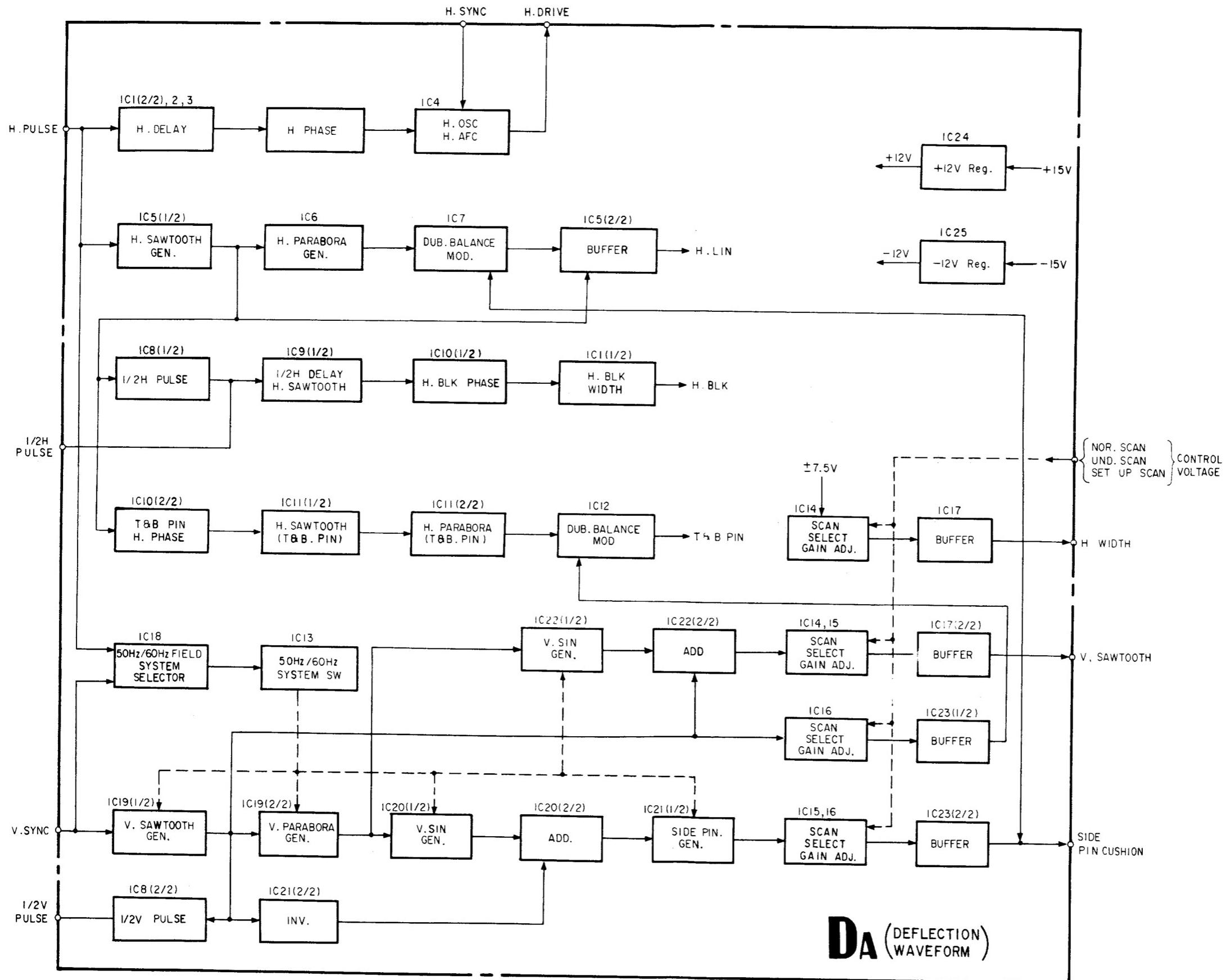


Figure 35

BLOCK DIAGRAM OF DA BOARD



### 3-15. HORIZONTAL OUTPUT (EA BOARD)

#### 3-15-1. Horizontal Deflection Circuit

Horizontal drive pulse for Horizontal deflection output is made at DA board and is fed to T4 (Horizontal Drive Transformer) via Q13 (H. driver). T4 is driven by Q13 and output pulse of T4 drives Q14 (Horizontal Output Transistor).

To obtain high efficiency in this model, DC-DC converter is used for side pincushion correction, Horizontal Width adjustment and +B Line voltage conversion to the horizontal deflection circuit.

This converted Line voltage is fed to horizontal deflection output circuit via H.O.T (Horizontal Output Transformer). Side pincushion correction and H. width adjustment are made by this DC-DC converter. IC1 contains error amplifier and PWM (Pulse Width Modulator) circuit for DC-DC converter. Side pincushion correction waveform and DC voltage for H. Width adjustment are made in DA board and supplied to error amplifier to control DC-DC converter.

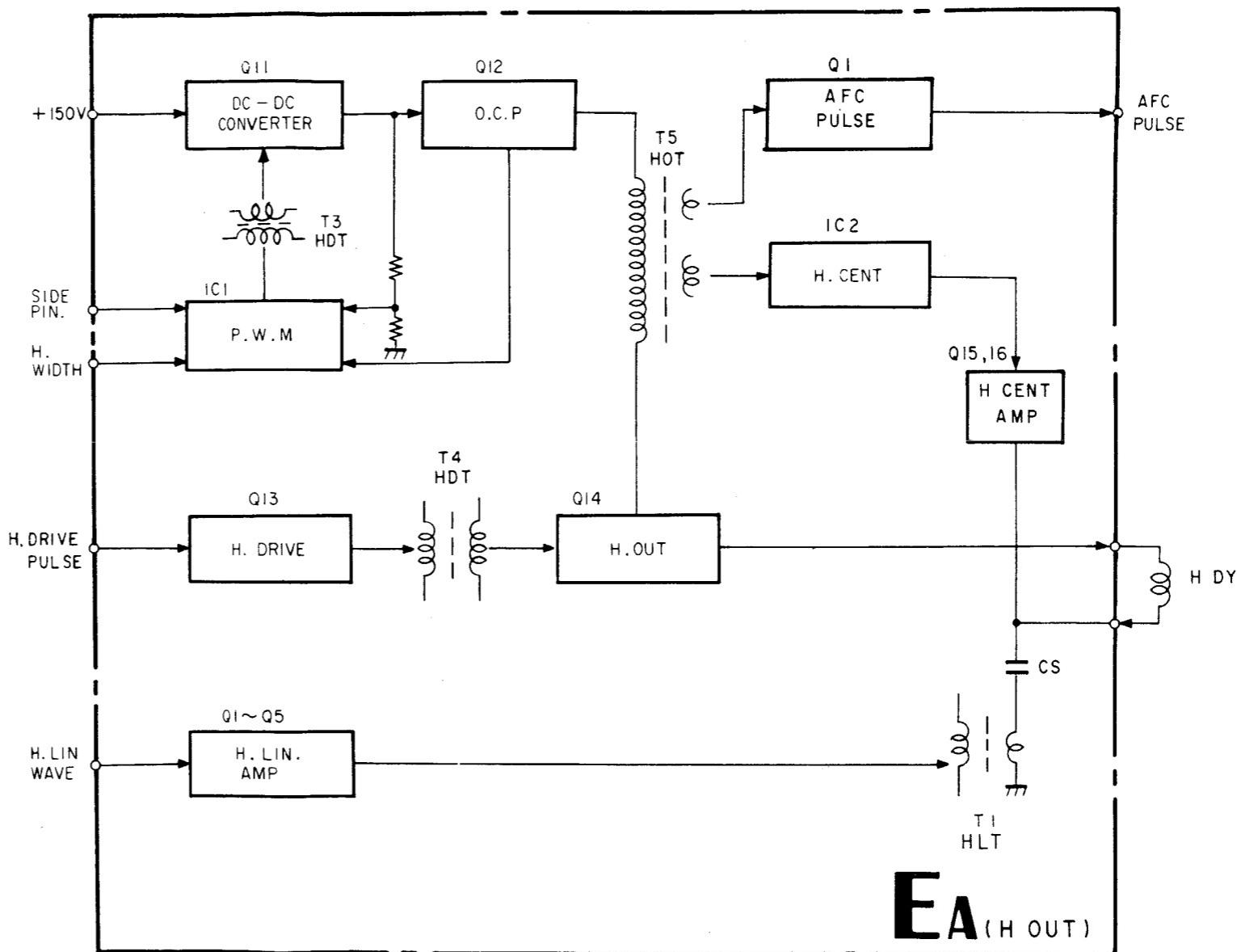
#### 3-15-2. Horizontal Centering Circuit

± low voltages power supply for H centering are made in this circuit from output of secondary windings of T5 (Horizontal Output Transformer). These low voltages are converted to current source for mixing DC current on the deflection current. In this circuit Bow shaped geometry distortion due to the H centering adjustment is adjusted by providing vertical rate parabola waveform current on the H centering current.

#### 3-15-3. Horizontal Linearity Correction Circuit

Waveform for Horizontal Linearity correction made in DA board is fed to SEPP amplifier (Single Ended Push Pull) which are composed of Q1 - Q5 transistors. Output of this amplifier is fed to H deflection circuit (Deflection Yoke) and make correction of H linearity by T1 (Horizontal Linearity Transformer).

BLOCK DIAGRAM OF EA BOARD



### 3-16. HIGH VOLTAGE REGULATOR (PA BOARD)

This high voltage regulator uses also DC-DC converter so as to reduce power consumption.

The theory of operation of this circuit is as follows.

#### 3-16-1. Detection of High Voltage

High Voltage applied to the CRT anode is converted to the low voltage by DCT block (Dynamic Convergence Transformer). This low voltage is fed to buffer amplifier IC4(2/2) and compared with external reference voltage in IC1. The DCT contains resistor-network and transformer for convergence adjustment. This resistor-network works as a voltage divider.

#### 3-16-2. PWM Modulator

IC1 works as error amplifier and PWM modulator comparing voltage between high voltage and the reference voltage is amplified and modulated so as to drive Q102 output transistor. Output signal from IC1, which is modulated in PWM, is fed to Q102 via drive transformer. +B line supplied to FBT (Fly Back Transformer) circuit is controlled by switching Q102 output transistor on/off.

#### 3-16-3. Output Circuit

When high voltage drops down, output voltage of DCT also drops as above mentioned. At this time PWM circuit is designed so that the ON period of Q102 output transistor should be longer than high voltage drops down. +B line, switched ON/OFF by Q102, is supplied to converter circuit which drives FBT via LOT (Line Output Transformer).

Amount of collector current of Q103, which drives FBT, depends upon ON period of Q102 because PWM modulator is triggered by H. pulse. Therefore when ON period of Q102 is longer, collector current of Q103 increases and energy stored in capacitor C124 increases, causing potential of C124 to rise. (Refer to Figure 37) When output transistor Q103 goes off, flyback pulse is generated by resonance between capacitor C108 and inductance obtained by parallel connection of FBT and LOT. This flyback pulse is transferred to the secondary circuit of FBT. Therefore high voltage is generated.

#### 3-16-4. High Voltage regulator

Q102, Q107, IC4 (2/2), IC1 (IC for controlling P.W.M) and HVR (DCT block) form a regulator.

Since the detection pin voltage of HVR is decreased when the high voltage is lowered due to increase of the CRT current, it makes the switch ON time length of Q102 longer. As a result, the collector peak current of Q103 is increased and accordingly, the energy accumulated in C124, which is fed to it through the FBT, is increased. In this way, it raises the potential of C124 and regulates the high voltage.

Q103,C108, C124 and the FBT form a high voltage converter circuit.

The pulse of on-duty 60% is generated with the H pulse by a time constant circuit which consists of Q109, Q110, Q111, Q112, R143, C128, R144, C127 and D111. When Q103 is switched OFF due to the on-duty 60% pulse, flyback pulse is generated at the collector of Q103 by resonating of the LOT, FBT and C108.

#### 3-16-5. High Voltage Protection Circuit

High voltage protector activates to shut down high voltage, when high voltage exceeds the predetermined value so as to prevent X-ray radiation.

The high voltage converted to the low voltage is detected at the terminal of DCT block. This detected voltage is fed to the + input terminal of comparator IC2(2/2) via low pass filter, which is composed of resistor R245 and capacitor C216. When this voltage exceeds the reference voltage, the voltage of ⊖ input terminal of comparator IC2(2/2), output level of this comparator goes high level and turns SCR (D206) gate on to shut down the drive pulse of flyback generator. Thus high voltage stops. The reference voltage of the comparator IC2(2/2) is made by mixing stabilized voltage (zener diode D215)

#### 3-16-6. Protection Circuit for Excess Beam Current

Beam current which flows in secondary windings of FBT is measured at the terminal 9 of FBT. This beam current is converted to the voltage by resistor R1 (R4) and R2 (R3), R5(R6) located in PB board in series connection of secondary windings of FBT. This converted voltage is fed to ⊖ input of comparator IC2(1/2) or IC3(1/2). As beam current increases, ⊖input voltage goes down. When beam current increases until ⊖input voltage goes below the reference voltage (+ input terminal voltage) output voltage of comparator goes up high level and SCR (D205 or D206) turns ON. Thus drive pulse of flyback generator is shut down. Therefore high voltage stops.

#### 3-16-7. CRT Protection Circuit

When vertical deflection stops, this circuit activates to shut down high voltage to prevent damage of CRT.

When vertical deflection stops, there is no vertical output pulse generated at vertical output amplifier. So Q201 transistor is cut off and output of comparator IC4(1/2) goes up high level. Q202 transistor turns on and flyback generator stops.

#### 3-16-8. G2 Voltage Regulator

Flyback pulse generated at Q103 (HV output transistor) is rectified to obtain DC voltage. Q104 transistor which works in accordance with G2 control circuit in BI board supplied proper voltage to G2 of CRT.

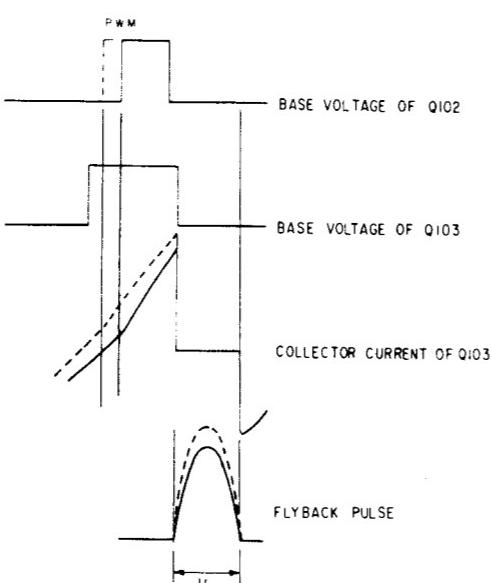


Figure 36

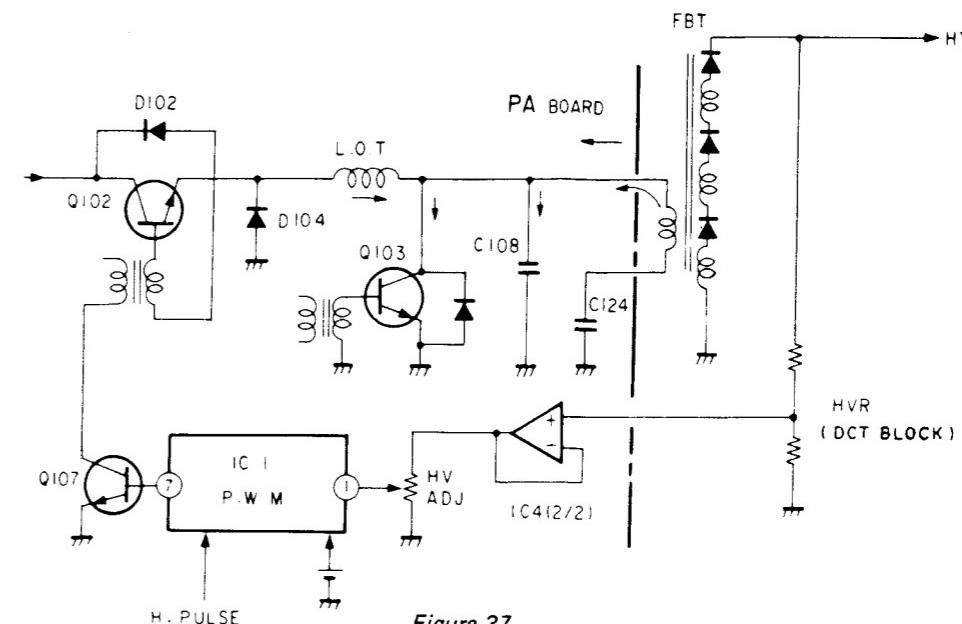
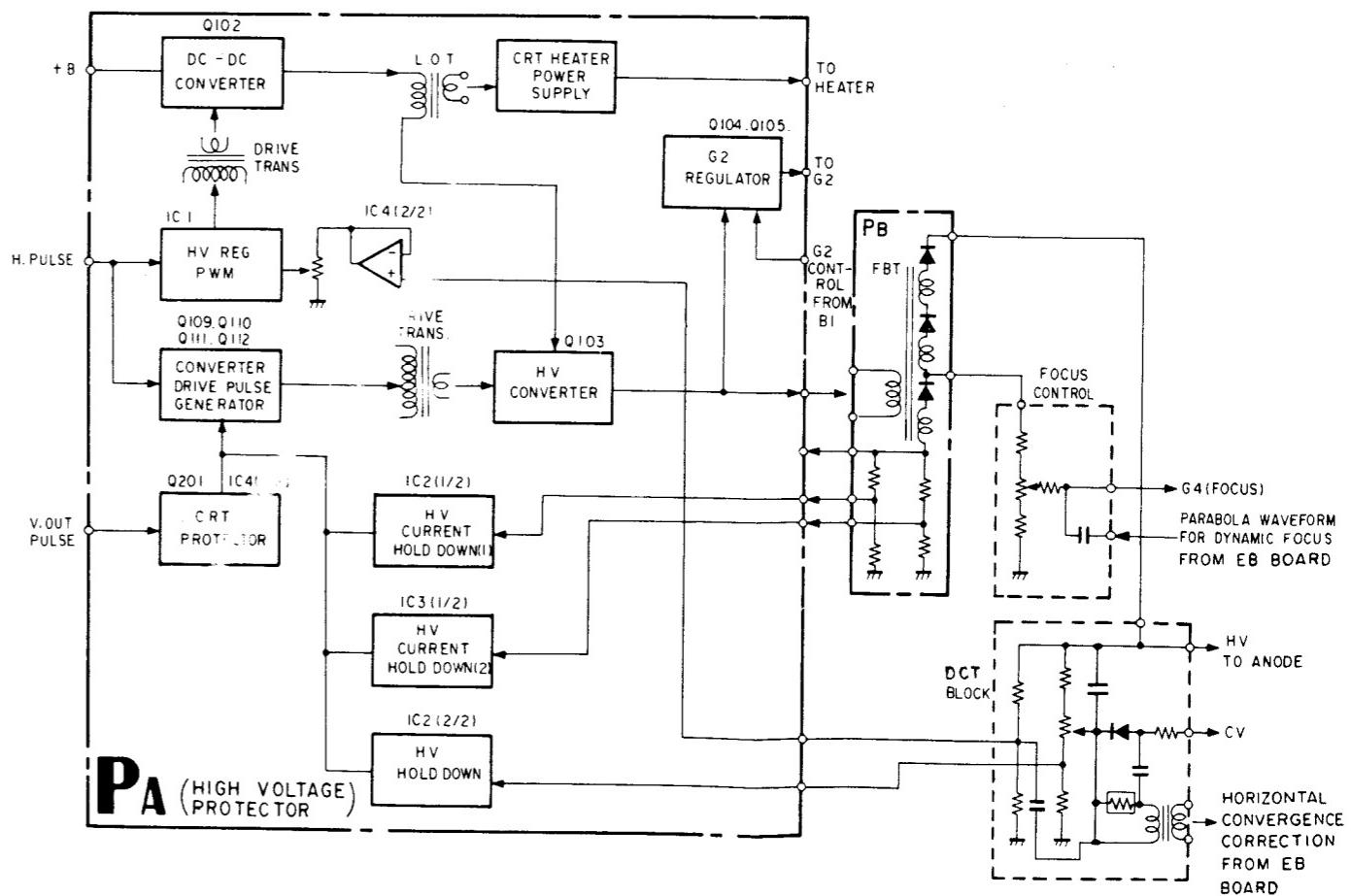


Figure 37

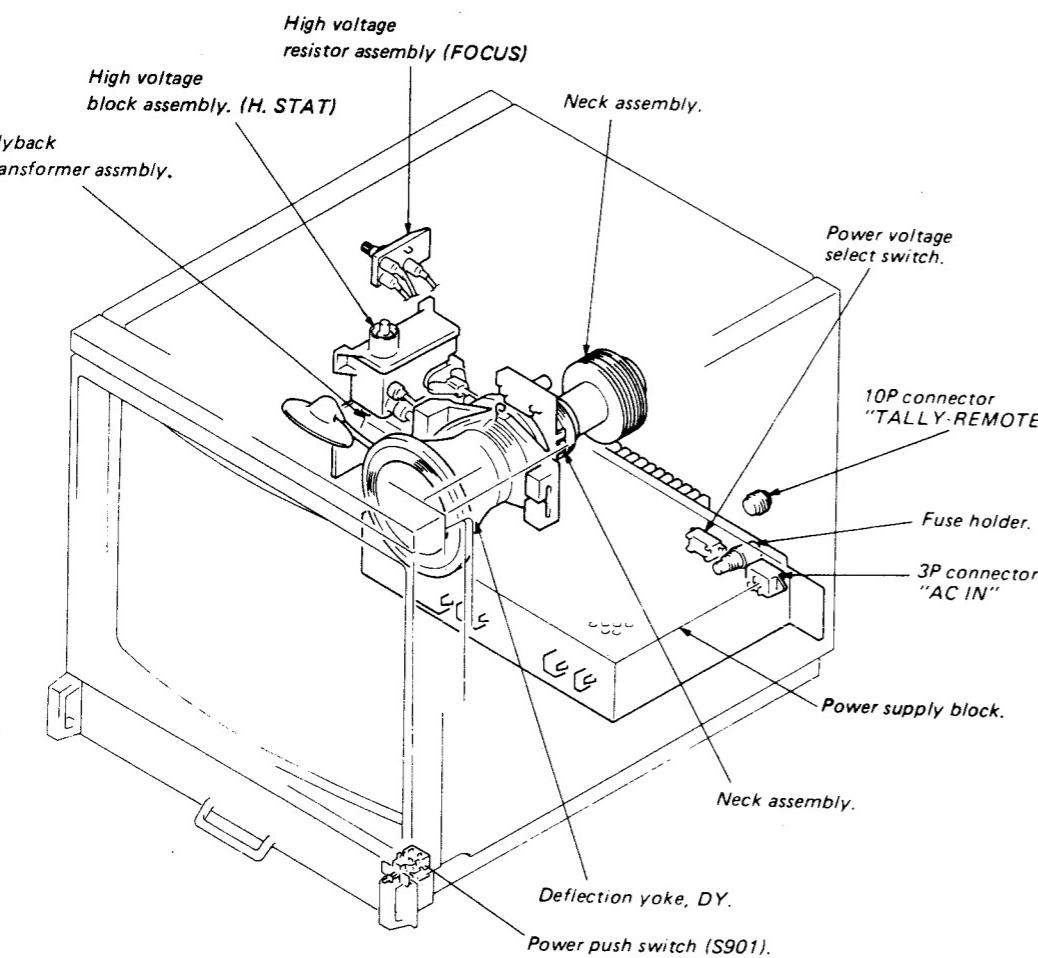
#### BLOCK DIAGRAM OF PA BOARD



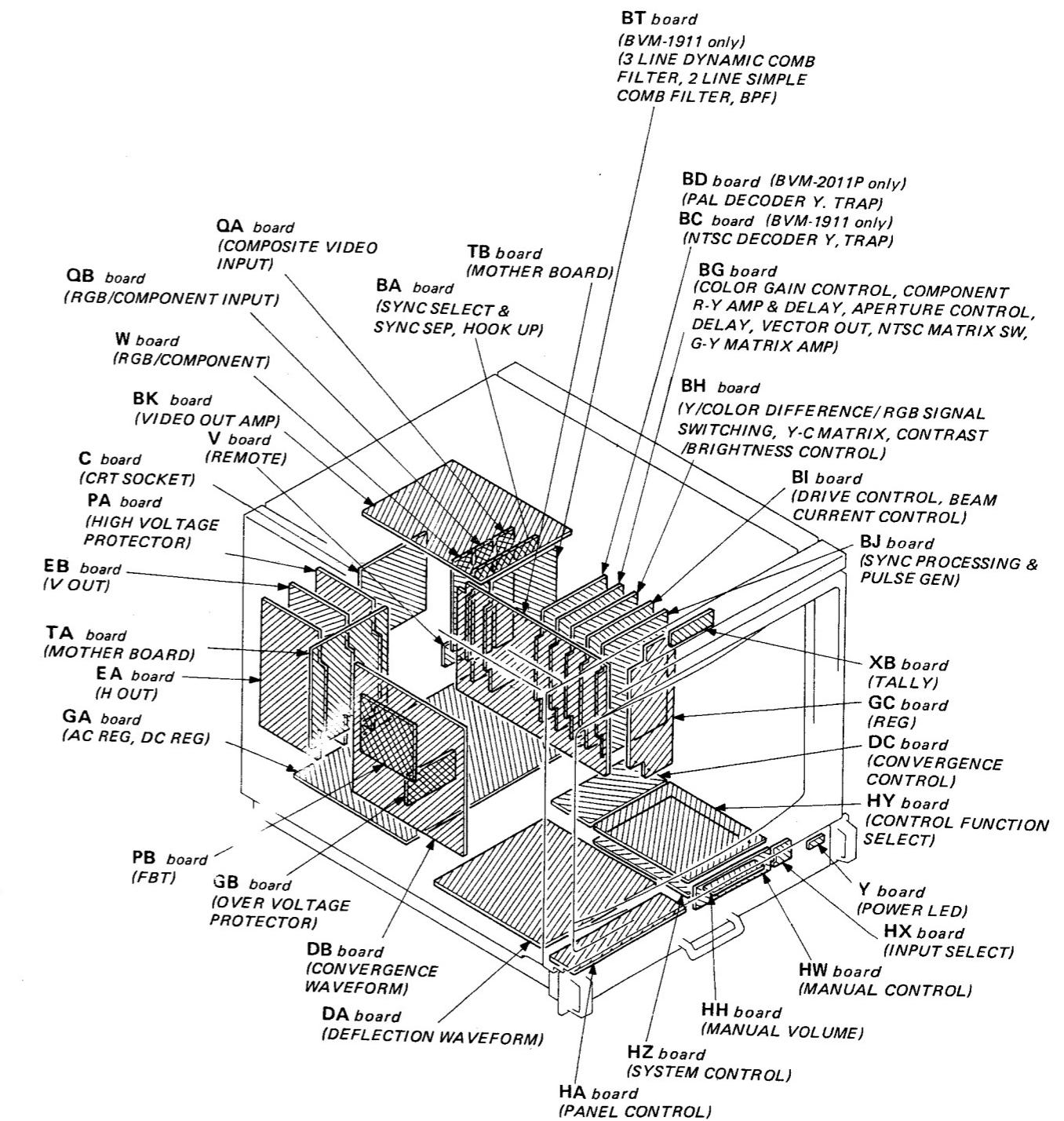


## SECTION 4 ADJUSTMENTS

### 4-1. INTERNAL VIEW



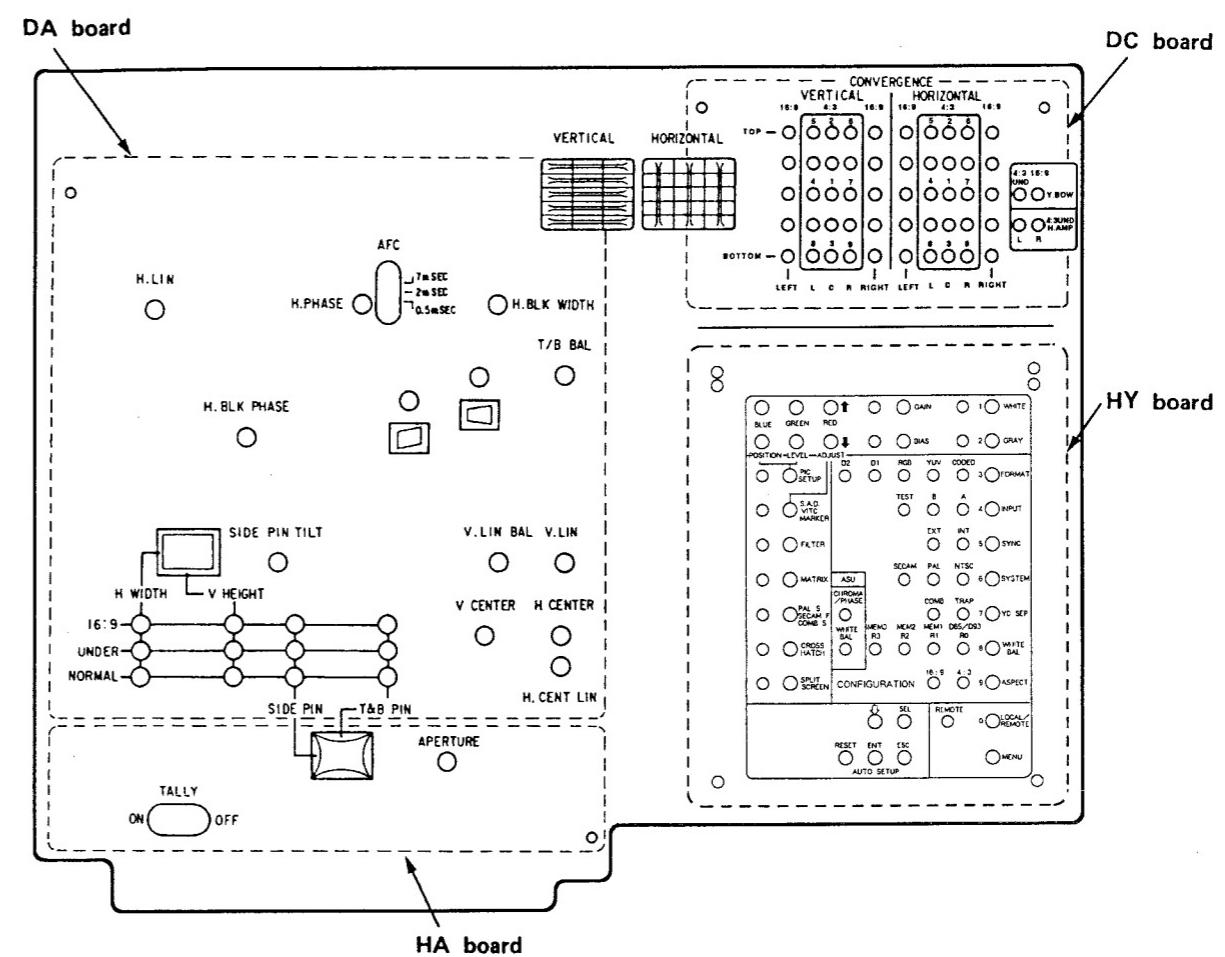
### 4-2. CIRCUIT BOARDS LOCATION



### 4-3. QUICK REFERENCE

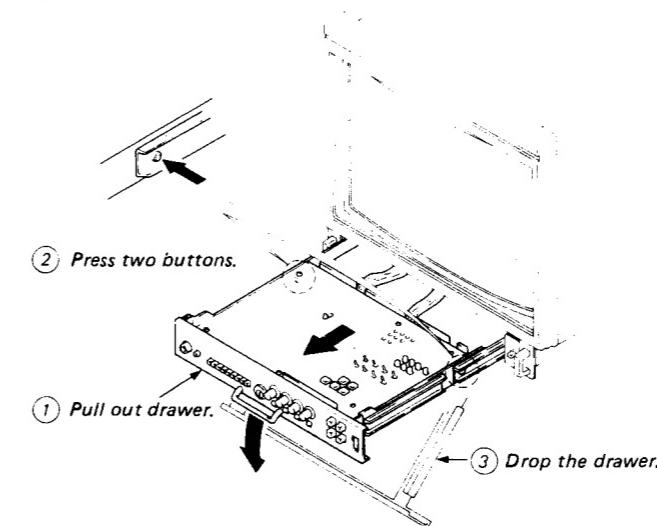
| BOARD SECTION         | BA           | BC   | BD    | BG           | BH   | BI          | BJ                   | BK           | BT   | C    | DA    | DB    |
|-----------------------|--------------|------|-------|--------------|------|-------------|----------------------|--------------|------|------|-------|-------|
| CIRCUIT DESCRIPTION   | 3-1          | 3-21 | 3-19  | 3-3          | 3-5  | 3-7<br>3-15 | 3-9                  | 3-13<br>3-15 | 3-17 | —    | 3-31  | 3-27  |
| ADJUSTMENTS           | 4-23<br>4-27 | 4-33 | 4-63  | 4-23<br>4-29 | 4-23 | —           | 4-21<br>4-32<br>4-46 | 4-47         | 4-49 | —    | 4-78  | —     |
| BLOCK DIAGRAM         | 3-2          | 3-22 | 3-20  | 3-4          | 3-5  | 3-7         | 3-9                  | 3-13         | 3-17 | —    | 3-33  | 3-28  |
| MOUNTING DIAGRAM      | 5-15         | 5-25 | 5-33  | 5-35         | 5-43 | 5-45        | 5-53                 | 5-55         | 5-20 | 5-88 | 5-63  | 5-65  |
| SCHEMATIC DIAGRAM     | 5-17         | 5-27 | 5-30  | 5-37         | 5-41 | 5-47        | 5-51                 | 5-57         | 5-23 | 5-92 | 5-61  | 5-67  |
| ELECTRICAL PARTS LIST | 7-1          | 7-4  | 7-5   | 7-8          | 7-11 | 7-13        | 7-16                 | 7-18         | 7-21 | 7-31 | 7-37  | 7-34  |
| BOARD SECTION         | DC           | EA   | EB    | GA           | GB   | GC          | HA                   | HH           | HW   | HX   | HY    | HZ    |
| CIRCUIT DESCRIPTION   | 3-27         | 3-35 | 3-23  | 3-25         | 3-25 | —           | —                    | —            | —    | —    | —     | —     |
| ADJUSTMENTS           | —            | —    | —     | 4-13         | —    | —           | —                    | —            | 4-20 | —    | —     | —     |
| BLOCK DIAGRAM         | 3-28         | 3-36 | 3-24  | 3-26         | 3-26 | —           | —                    | —            | —    | —    | —     | —     |
| MOUNTING DIAGRAM      | 5-73         | 5-76 | 5-77  | 5-83         | 5-82 | 5-105       | 5-95                 | 5-95         | 5-95 | 5-96 | 5-97  | 5-101 |
| SCHEMATIC DIAGRAM     | 5-70         | 5-79 | 5-79  | 5-85         | 5-86 | 5-107       | 5-94                 | 5-93         | 5-93 | 5-93 | 5-93  | 5-99  |
| ELECTRICAL PARTS LIST | 7-32         | 7-40 | 7-33  | 7-26         | 7-31 | 7-25        | 7-46                 | 7-42         | 7-42 | 7-42 | 7-42  | 7-44  |
| BOARD SECTION         | PA           | PB   | QA    | QB           | TA   | TB          | V                    | W            | XB   | Y    | Z     |       |
| CIRCUIT DESCRIPTION   | 3-37         | 3-37 | 3-1   | 3-1          | —    | —           | —                    | —            | —    | —    | —     | —     |
| ADJUSTMENTS           | 4-15         | —    | —     | —            | —    | —           | —                    | —            | —    | —    | —     | —     |
| BLOCK DIAGRAM         | 3-38         | 3-38 | 3-2   | 3-2          | —    | —           | —                    | —            | —    | —    | —     | —     |
| MOUNTING DIAGRAM      | 5-88         | 5-88 | 5-104 | 5-105        | 5-7  | 5-11        | 5-106                | 5-105        | 5-96 | 5-96 | 5-109 |       |
| SCHEMATIC DIAGRAM     | 5-91         | 5-92 | 5-107 | 5-107        | 5-9  | 5-13        | 5-107                | 5-108        | 5-94 | 5-94 | —     |       |
| ELECTRICAL PARTS LIST | 7-47         | 7-25 | 7-25  | 7-25         | 7-47 | 7-47        | 7-33                 | 7-41         | 7-1  | 7-47 | 7-47  |       |

### 4-4. SUB CONTROL PANEL LOCATION



### ADJUSTING METHOD OF DRAWER BLOCK

\* Pull out sub-control panel and press two stopper buttons to drop it 60° as shown in the figure.



#### 4-5. SETUP ADJUSTMENT IN CASE OF PICTURE TUBE REPLACEMENT

When the picture tube has been replaced, make the following adjustments. Convergence and white balance are normally adjusted by the potentiometers on the sub control panel.

(Refer to pages 4-6, 4-7, 4-8 and 4-9)

##### [Jigs Tools and Measurement Equipment Required]

1. SIGNAL GENERATOR (TEKTRONIX 1410 and 1411 Series)
2. COLOR ANALYZER
3. LUMINANCE METER

##### [Landing adjustment]

1. Connect signal generator and receive a white signal.
2. Set BRIGHTNESS and CONTRAST VRs to the preset position (□).
3. Face the CRT screen toward East (or West) and press the DEGAUSS switch.
4. Set the purity knob to mechanical center as shown in Fig. 1-1.

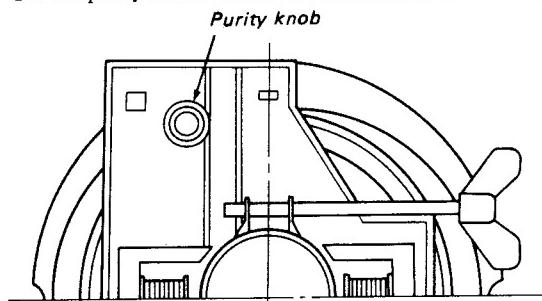


Fig. 1-1.

5. Slide DY (Deflection Yoke) as far forward as possible.
6. Set the neck assembly in the position shown in Fig. 1-2.

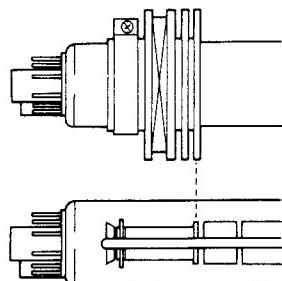


Fig. 1-2.

7. Set the screen to green only (R and B on the FRONT PANEL are in the IN position and G in the OUT position).
8. Turn purity knob as shown in Fig. 1-3 to bring the green on the center of the screen.

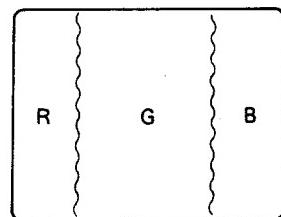


Fig. 1-3.

9. Slide DY back for uniform green raster.
10. Make the screen red only (G and B on the FRONT PANEL are in the IN position and R in the OUT position) and check landing.
11. Make the screen blue only (R and G on the FRONT PANEL are in the IN position and B in the OUT position) and check landing.
12. Adjust DY tilt and tighten DY set-screw.
13. Secure the DY with the spacers. (Fig. 1-4)

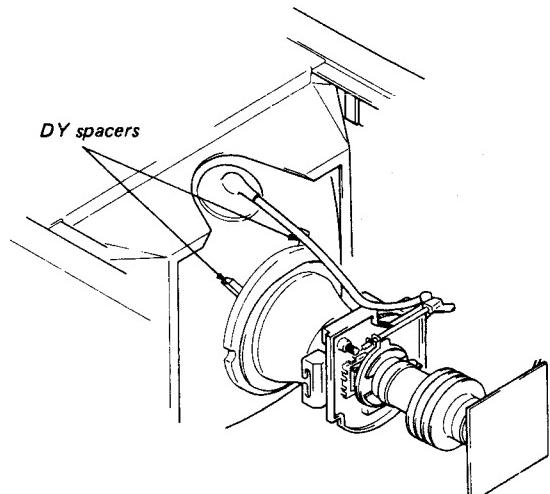
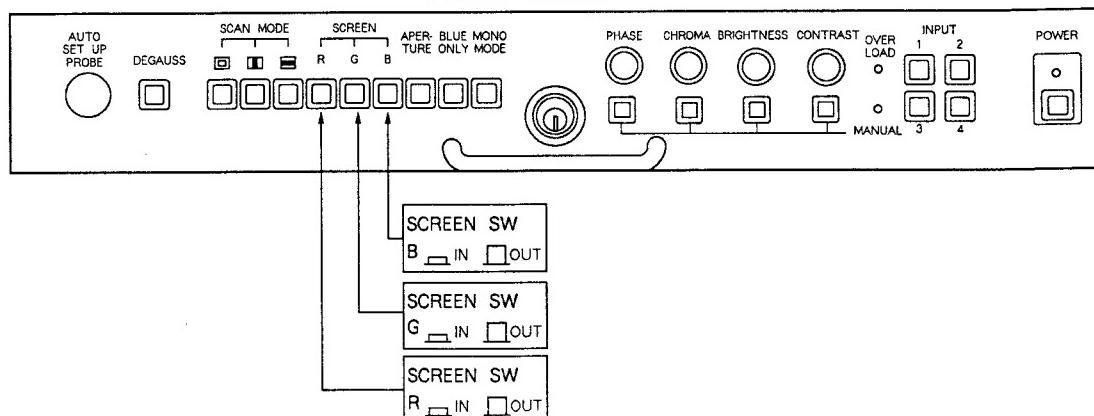


Fig. 1-4.

##### • Final check

After adjustments, check that there is no mislanding by facing the CRT towards East, West, North and South directions.

#### FRONT PANEL



**[Focus adjustment]**

1. Connector signal generator (TEKTRONIX 1410 and 1411).
2. Input a dot or cross-hatch signals.
3. Adjust the FOCUS control for best focus in the central portion of the screen as shown in Fig. 1-5.

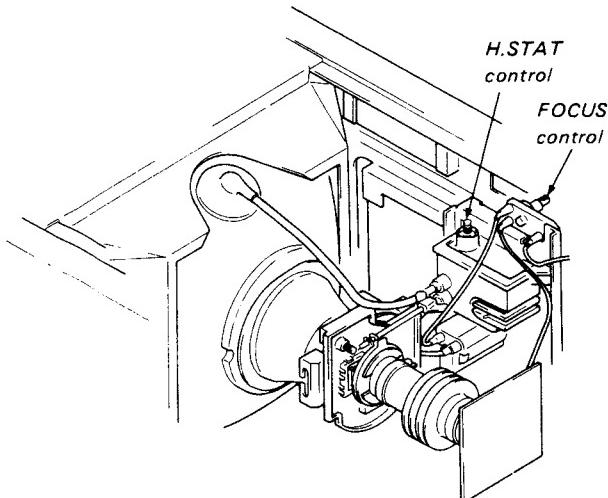


Fig. 1-5.

**[Convergence Adjustment]****Preparation**

1. Complete the signal generator connection and feed the dot and cross-hatch signals.
2. Set the CONTRAST and BRIGHTNESS controls at the points where the dots and the cross-hatch can be observed clearly.
3. Set the H. STATIC CENTER control (RV23) on the DC board to mechanical center as shown in Fig. 1-6.

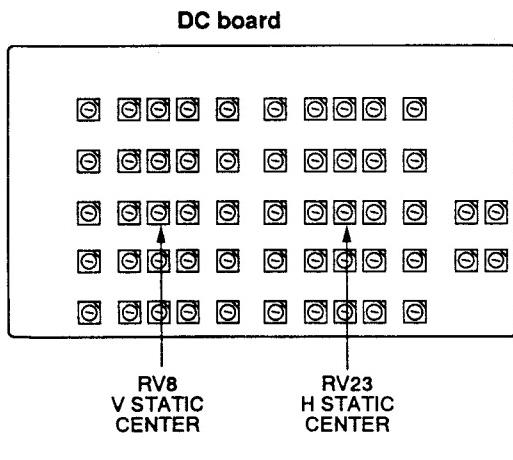


Fig. 1-6.

**[Static Convergence]****• Horizontal Static Convergence**

1. Adjust H. STAT control of DCT BLOCK to match the convergence of red and green in the horizontal direction at screen center.
2. Perform the HMC correction when blue is out of convergence in the same direction on all over the screen.
3. Move the BMC magnet to correct H. static convergence as shown in Fig. 1-7.

**• Vertical Static Convergence**

1. Adjust the V. STATIC CENTER (RV8) on the DC board to match the convergence of red and green in the vertical direction at screen center.
2. When blue is out of the convergence in the same direction all over the screen, perform the VMC correction.
3. Move the BMC magnet to correct static convergence as shown in Fig. 1-7.

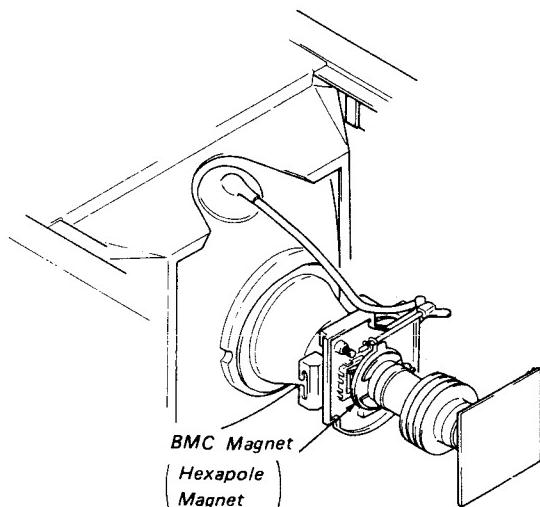


Fig. 1-7.

**• HMC and VMC correction for BMC Magnet.**

1. HMC (Horizontal, Mis, convergence) correction and motion of the Electron Beam with the Hexapole Magnet.

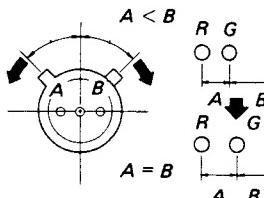
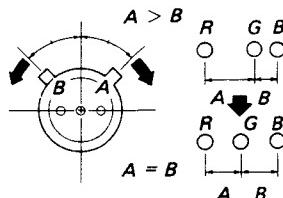
**HMC correction (A)****HMC correction (B)**

Fig. 1-8.

2. VMC (Vertical, Mis, convergence) correction and motion of the Electron Beam with the Hexapole Magnet.

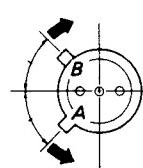
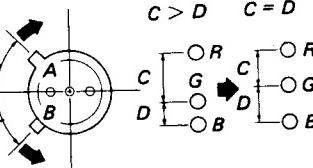
**VMC correction (A)****VMC correction (B)**

Fig. 1-9.

### [DYNAMIC CONVERGENCE]

#### • Convergence adjustment of 4:3 aspect picture.

1. ASPECT button on the HY board ..... 4:3
2. Adjust CONVERGENCE controls (RV1 ~ RV30) on the DC board as shown in Fig. 1-10.
3. It can be adjusted as Red and Blue move in symmetry to the Green. (Green does not move)
4. Adjust the convergence corresponding to the portion of the screen as follows.
5. Always match the convergence in the order of center → on Y axis → on X axis → corner against the screen.

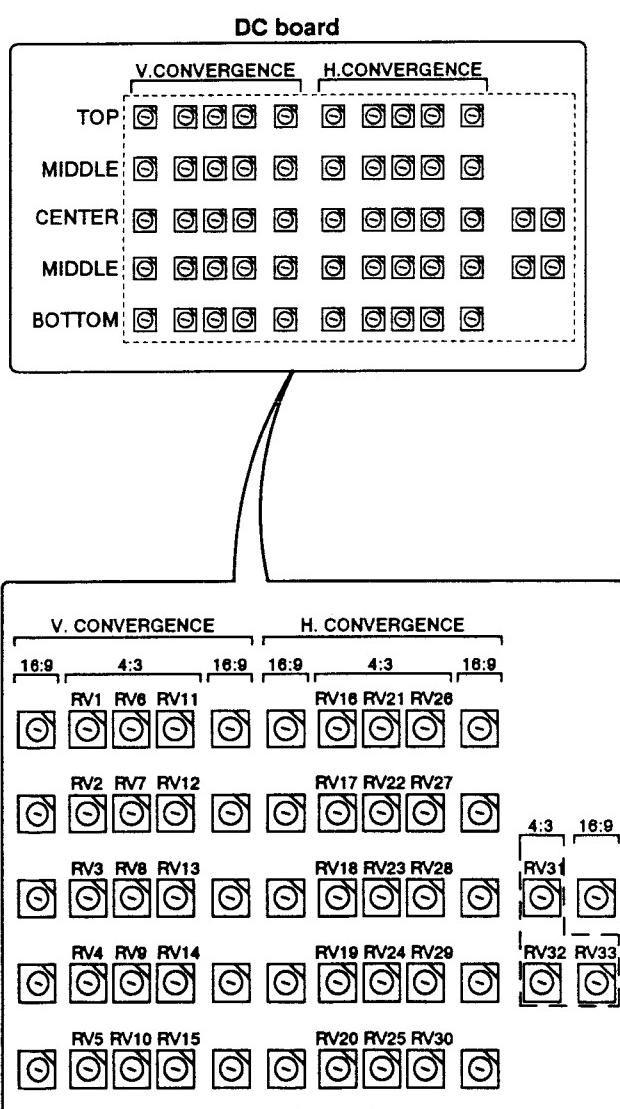


Fig. 1-10.

### [CONVERGENCE PROCESS]

1. UNDER SCAN switch ..... NOR (□)
2. Adjust RV23 and RV8 on the DC board to coincide with R, G and B dots at the center of the screen as shown in Fig. 1-11.

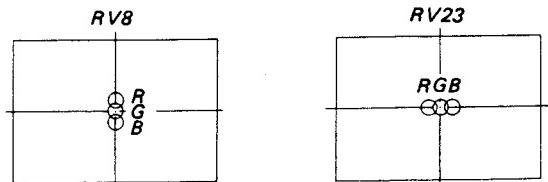


Fig. 1-11.

3. Adjust RV6, RV10, RV21 and RV25 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-12.

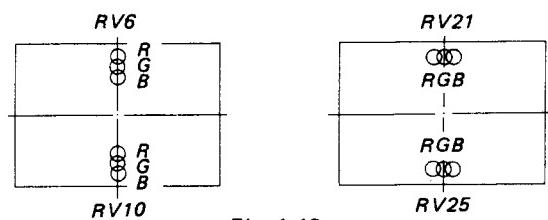


Fig. 1-12.

4. Adjust RV3, RV13 and RV18, RV28 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-13.

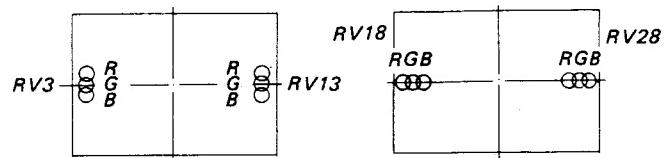


Fig. 1-13.

5. Adjust RV1, RV5 and RV11, RV15 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-14.

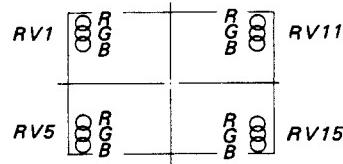


Fig. 1-14.

6. Adjust RV16, RV20 and RV26, RV30 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-15.

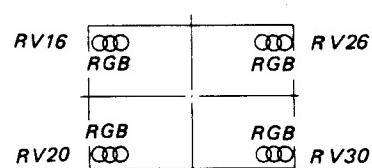


Fig. 1-15.

7. Adjust RV7, RV9 and RV22, RV24 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-16.

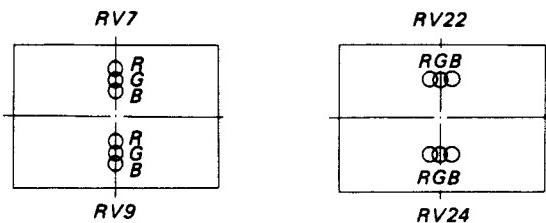


Fig. 1-16.

8. Adjust RV2, RV4 and RV12, RV14 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-17.

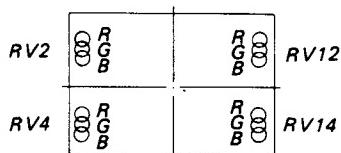


Fig. 1-17.

9. Adjust RV17, RV19 and RV27, RV29 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-18.

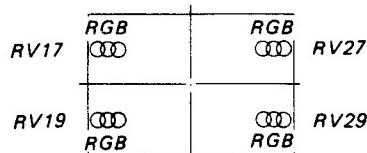


Fig. 1-18.

10. UNEDR SCAN switch . . . . . UNDER (—) .  
11. Adjust RV31 (UNDER SCAN Y. BOW) on the DC board to coincide with the R, G and B dots as shown in Fig. 1-19.

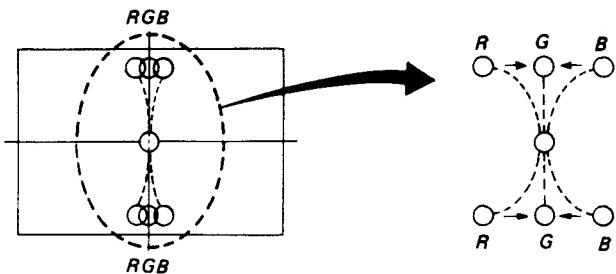


Fig. 1-19.

12. Adjust RV32 and RV33 (UNDER SCAN H. AMP) on the DC board to coincide with the R, G and B dots as shown in Fig. 1-20.

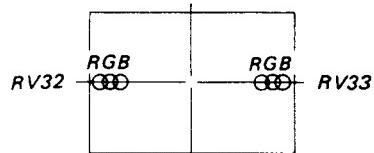
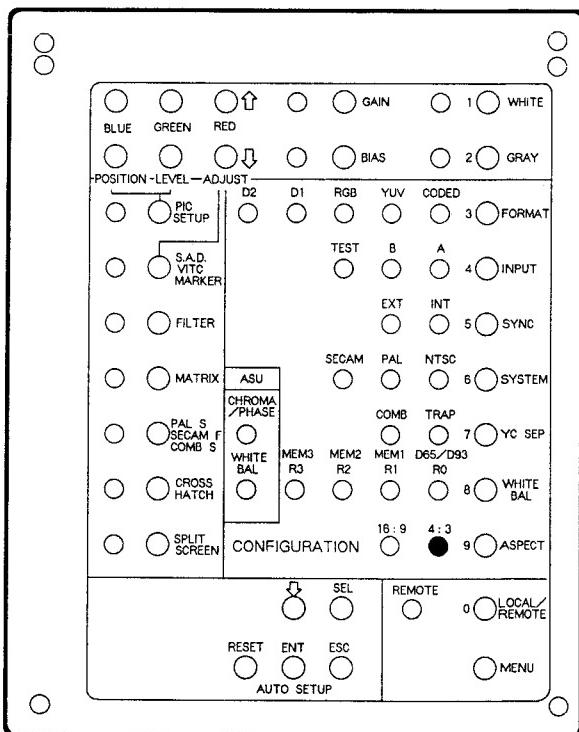
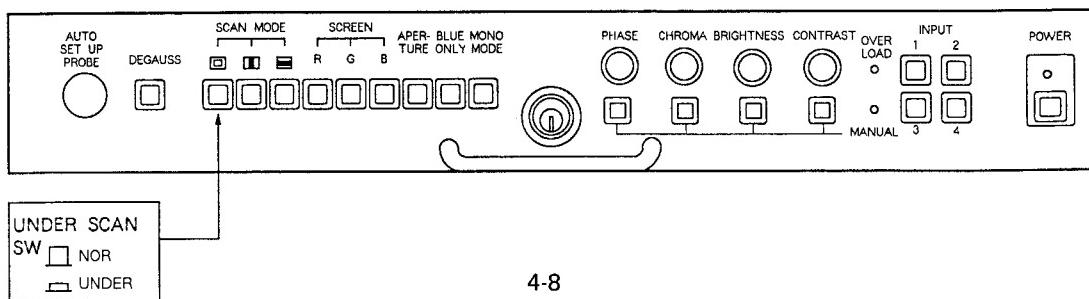


Fig. 1-20.

#### SUB CONTROL PANEL (HY board)



FRONT PANEL



● **Convergence adjustment of 16:9 aspect picture.**

1. ASPECT button on the HY board ..... 16:9
2. Adjust CONVERGENCE controls (RV41 ~ RV60) on the DC board as shown in Fig. 1-21.
3. It can be adjusted as Red and Blue move in symmetry to the Green. (Green does not move)
4. Adjust the convergence corresponding to the portion of the screen as follows.
5. Always match the convergence in the order of center → on Y axis → on X axis → corner against the screen.

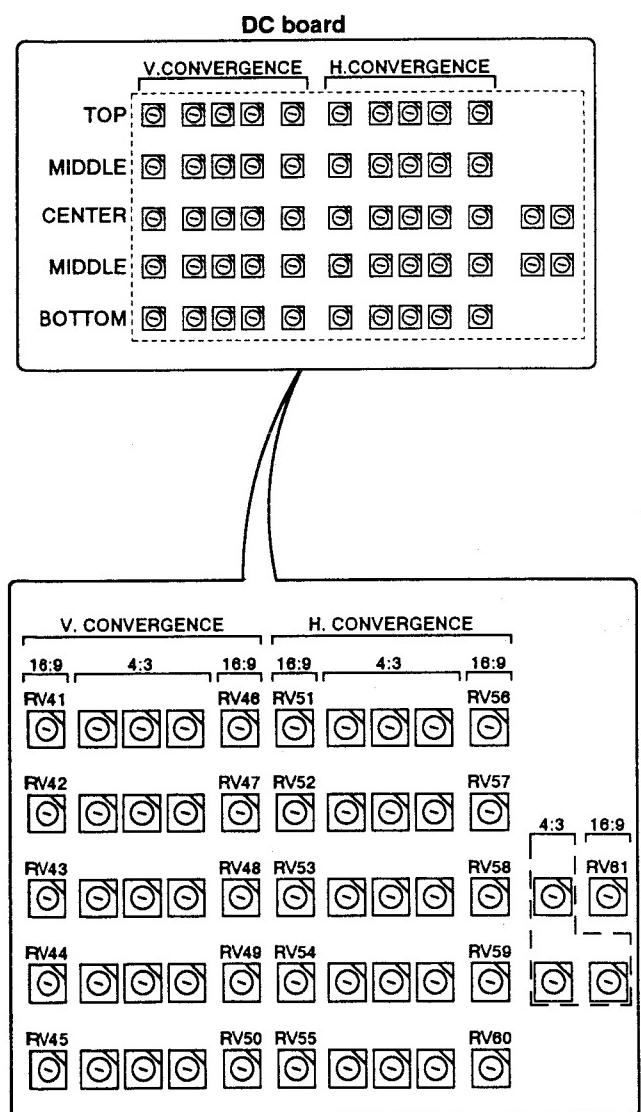


Fig. 1-21

[CONVERGENCE PROCESS]

1. UNDER SCAN switch ..... NOR (□)
2. Adjust RV43, RV48 and RV53, RV58 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-22.

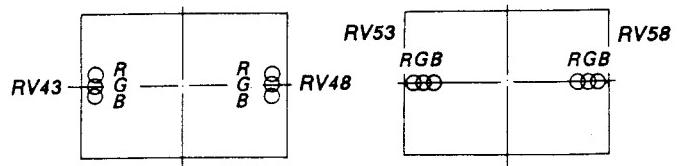


Fig. 1-22

3. Adjust RV41, RV45 and RV46, RV50 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-23.

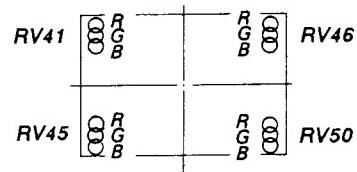


Fig. 1-23.

4. Adjust RV51, RV55 and RV56, RV60 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-24.
6. Adjust RV52, RV54 and RV57, RV59 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-26.

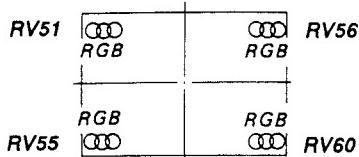


Fig. 1-24.

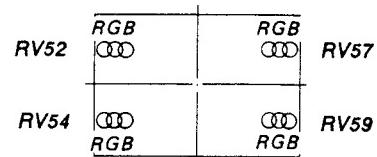


Fig. 1-26.

5. Adjust RV42, RV44 and RV47, RV49 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-25.

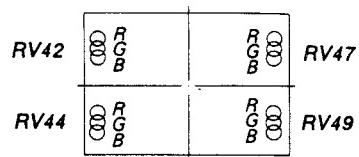


Fig. 1-25.

7. Adjust RV61 (Y. BOW) on the DC board to coincide with the R, G and B dots as shown in Fig. 1-27.

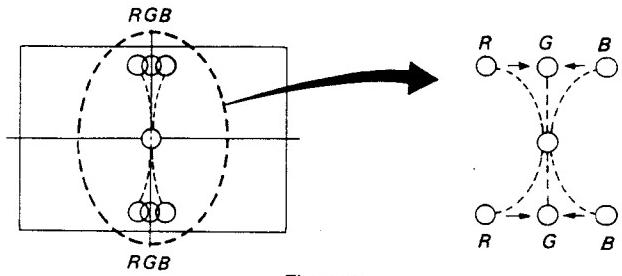
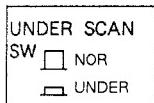
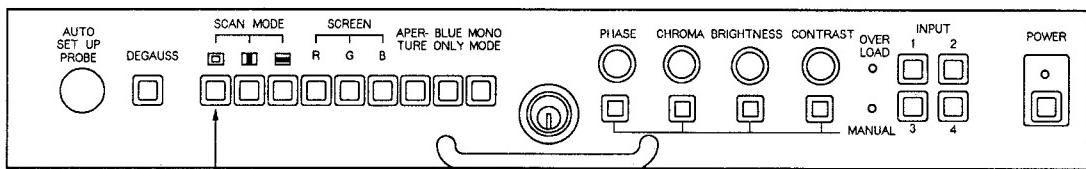
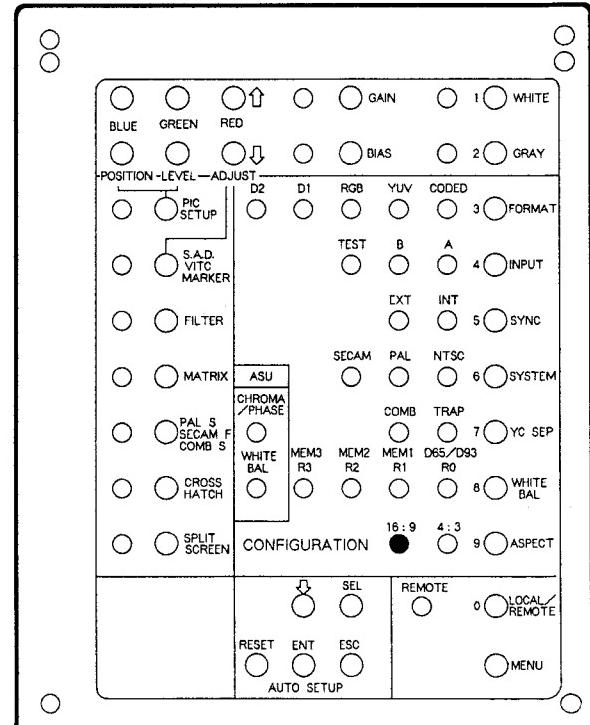


Fig. 1-27.

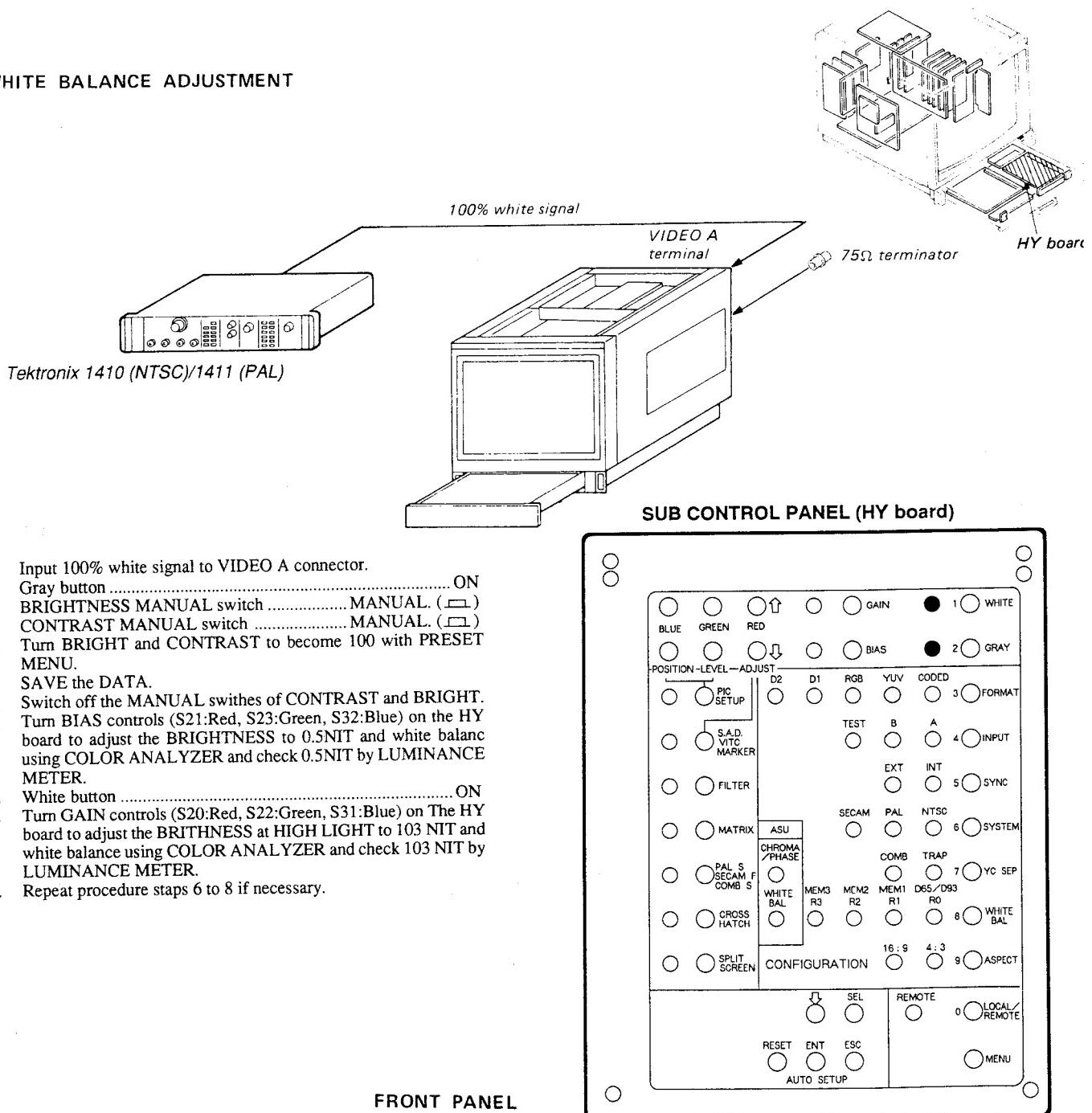
## FRONT PANEL



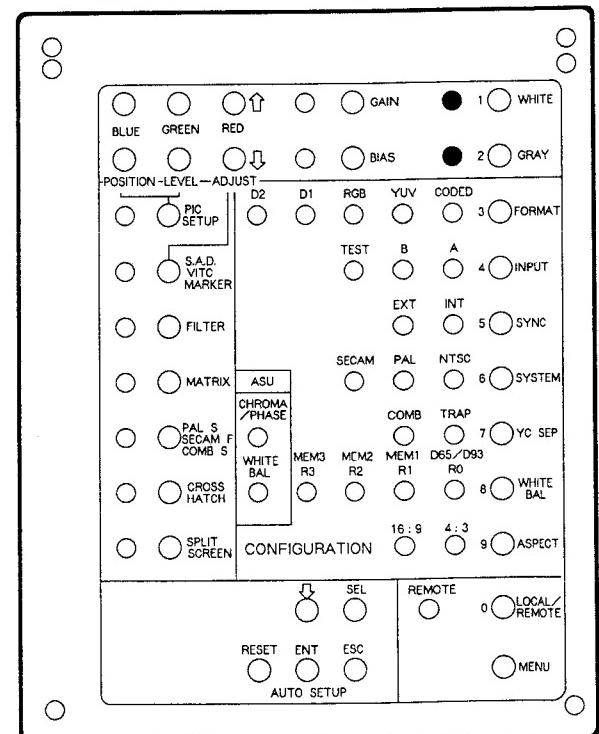
## SUB CONTROL PANEL (HY board)



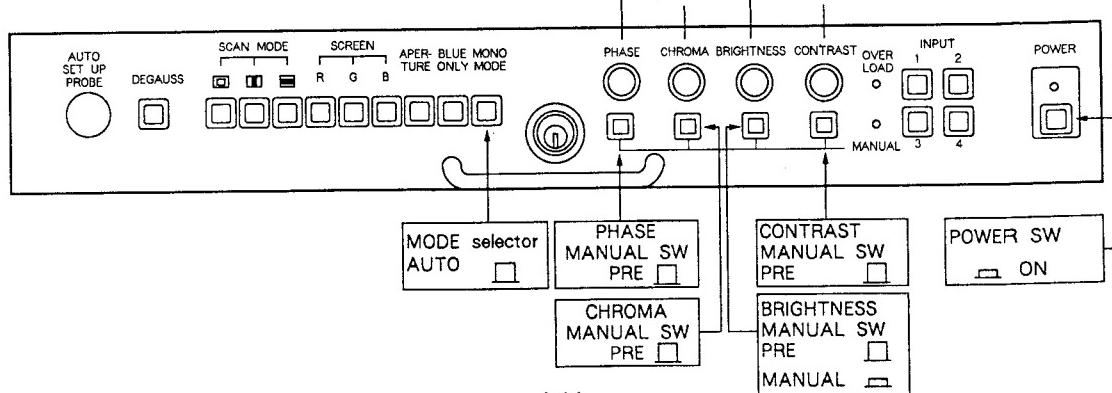
## WHITE BALANCE ADJUSTMENT



1. Input 100% white signal to VIDEO A connector.
2. Gray button ..... ON
3. BRIGHTNESS MANUAL switch ..... MANUAL. (□)
4. CONTRAST MANUAL switch ..... MANUAL. (□)
5. Turn BRIGHT and CONTRAST to become 100 with PRESET MENU.  
SAVE the DATA.
6. Switch off the MANUAL switches of CONTRAST and BRIGHT.
7. Turn BIAS controls (S21:Red, S23:Green, S32:Blue) on the HY board to adjust the BRIGHTNESS to 0.5NIT and white balance using COLOR ANALYZER and check 0.5NIT by LUMINANCE METER.
8. Turn GAIN controls (S20:Red, S22:Green, S31:Blue) on The HY board to adjust the BRITHNESS at HIGH LIGHT to 103 NIT and white balance using COLOR ANALYZER and check 103 NIT by LUMINANCE METER.
9. Repeat procedure steps 6 to 8 if necessary.



FRONT PANEL





#### 4-6. SAFETY RELATED ADJUSTMENTS

##### B+ PROTECTOR (R52, R53)

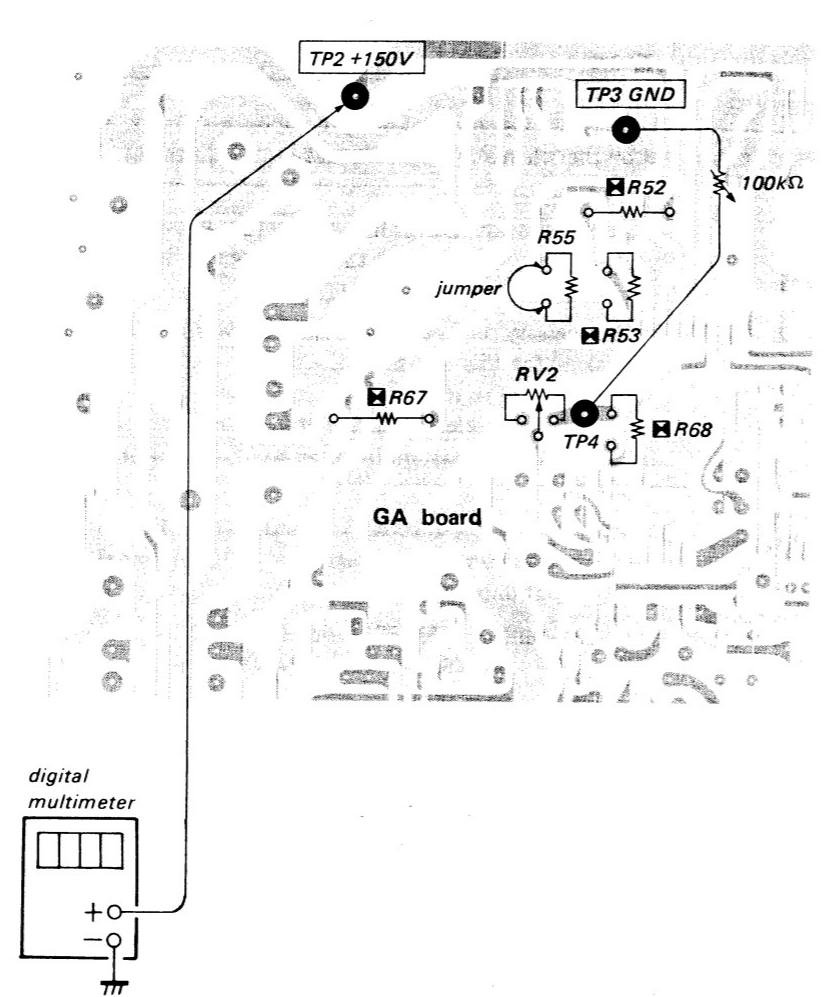
When replacing the following components (marked  on the schematic diagram), make this confirmation.

- GA Board . . Q13, Q14, R52, R53
- GB Board . . D5, D6, D7, D8, Q3, Q4, Q5, R4, R5, R19, R20, R21, R22

It is necessary to use a digital multimeter for this confirmation.

Connect a digital multimeter to TP2 on GA Board.

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual button is out  $\perp$ )
2. Short-circuit R55 on GA Board.
3. Connect a 100k $\Omega$  variable resistor between TP4 and TP3 (GND) on GA board.
4. Confirm that the reading on the digital multimeter drops abruptly from +182.0V ~ +216.0V to 0V by turning the 100k $\Omega$  variable resistor so that the value of the resistor decrease from maximum value.
5. If step 4 isn't satisfied, select resistance values of R52 and R53 which satisfy the specifications.
6. Restore these to their original states and confirm that the voltage at TP2 is 150.0  $\pm$ 1.0V.



##### B+ MAX CONFIRMATION (R67, R68)

When replacing the following components (marked  on the schematic diagram), make this confirmation.

- GA Board . . C59, IC3, R67, R68, R78, RV2

It is necessary to use a digital multimeter for this confirmation.

Connect a digital multimeter to TP2 on GA Board.

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual button is out  $\perp$ )
2. Confirm that the reading on the digital multimeter is +165.0V  $\pm$ 13.0V when RV2 variable resistor is turned to fully clockwise.
3. If the specifications are not met, select resistance values for R67 and R68 which satisfy the specifications.
4. After confirmation, make the reading on the digital multimeter into +150.0V  $\pm$ 1.0V by adjusting RV2 on GA Board.

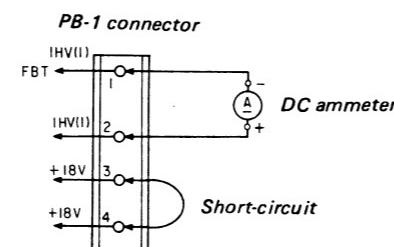
##### BEAM CURRENT PROTECTOR 1 CONFIRMATION (R222)

When replacing the following components (marked  on the schematic diagram), make this confirmation.

PA Board . . D205, D206, D215, IC2, R201, R202, R213, R214, R220, R221, R222, R223, R224, R242

PB Board . . FBT, R1, R2, R5

1. Remove the PB-1 connector from PB board.
2. Connect a DC ammeter between Pin ① and Pin ② of the PB-1 connector and short-circuit Pin ③ and Pin ④ with a jumper.



3. Connect a digital multimeter to TP2 and TP4 (GND) of PA board.
4. Select the built-in all-white signal (Set the WHITE/OPERATE/SET UP selector on HB board to WHITE). Don't do it in free run.
5. Confirm that the reading on the digital multimeter of TP3 on PA board is between +31.0V and +33.5V.
6. If the reading on the digital multimeter of TP2 is between +31.0V and +33.5V and more than 32.5V, mount a 1M $\Omega$ 1/4W resistor (metal-film) should be mounted at the portion of R222 on PA board. (Normally in this portion no component is mounted.)
7. Short-circuit R231 on PA board.
8. Short-circuit C1 on BI board.
9. Rotate the BRIGHTNESS and CONTRAST controls and confirm that the raster disappears when the value indicated on the DC ammeter is 2.20mA  $\pm$ 0.35mA.
10. Remove the short-circuit from R231 and C1 and restore the PB-1 connector to its original state.
11. Remove the jumpers and DC ammeter and reconnect the PB-1 connector.
12. Set the BRIGHTNESS and CONTRAST controls to their maximum positions and confirm that the ABL operates (OVERLOAD Lamp Lights up).

4. Select the built-in all-white signal (Set the WHITE/OPERATE/SET UP selector on HB board to WHITE). Don't do it in free run.
5. Confirm that the reading on the digital multimeter of TP3 on PA board is between +31.0V and +33.5V.
6. If the reading on the digital multimeter of TP2 is between +31.0V and +33.5V and more than 32.5V, mount a 1M $\Omega$ 1/4W resistor (metal-film) should be mounted at the portion of R222 on PA board. (Normally in this portion no component is mounted.)
7. Short-circuit R231 on PA board.
8. Short-circuit C1 on BI board.
9. Rotate the BRIGHTNESS and CONTRAST controls and confirm that the raster disappears when the value indicated on the DC ammeter is 2.20mA  $\pm$ 0.35mA.
10. Remove the short-circuit from R231 and C1 and restore the PB-1 connector to its original state.
11. Remove the jumpers and DC ammeter and reconnect the PB-1 connector.
12. Set the BRIGHTNESS and CONTRAST controls to their maximum positions and confirm that the ABL operates (OVERLOAD Lamp Lights up).

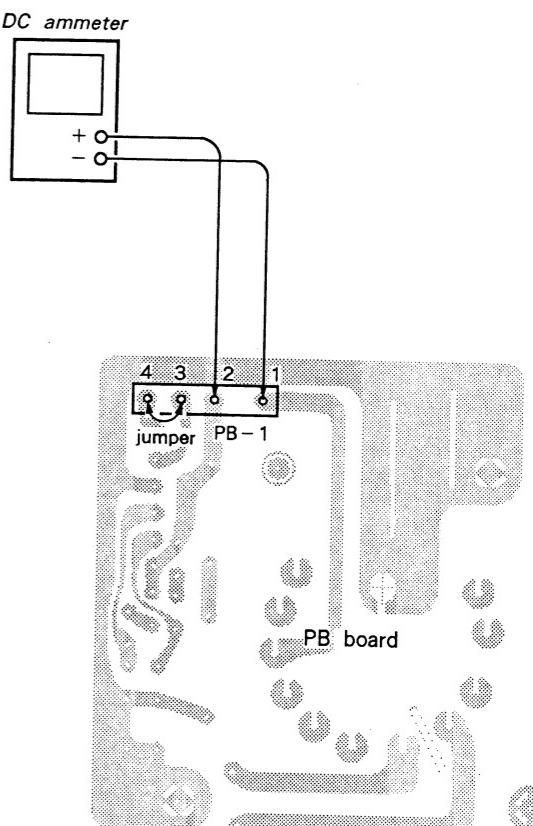
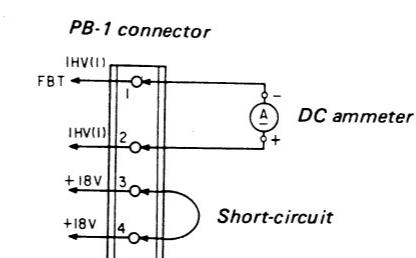
##### BEAM CURRENT PROTECTOR 2 (R239)

When replacing the following components (marked  on the schematic diagram), make this confirmation.

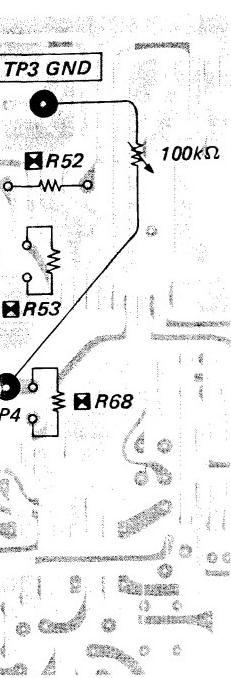
- PA Board . . D204, D216, R203, R204, R231, R232, R237, R238, R239, R240, R241, R247, IC3

PB Board . . R3, R4, R6, FBT

1. Remove the PB-1 connector from PB board.
2. Connect a DC ammeter between Pin ① and Pin ② of the PB-1 connector and short-circuit Pin ③ and Pin ④ with a jumper



3. Connect a digital multimeter to TP3 and TP4 (GND) of PA board.



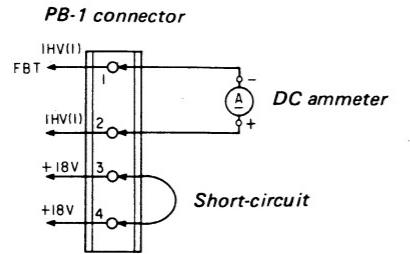
3. Connect a digital multimeter to TP2 and TP4 (GND) of PA board.
4. Select the built-in all-white signal (Set the WHITE/OPERATE/SET UP selector on HB board to WHITE). Don't do it in free run.
5. Confirm that the reading on the digital multimeter of TP2 on PA board is between +31.0V and +33.5V.
6. If the reading on the digital multimeter of TP2 is between +31.0V and +33.5V and more than 32.5V, mount a 1MΩ1/4W resistor (metal-film) should be mounted at the portion of R222 on PA board. (Normally in this portion no component is mounted.)
7. Short-circuit R231 on PA board.
8. Short-circuit C1 on BI board.
9. Rotate the BRIGHTNESS and CONTRAST controls and confirm that the raster disappears when the value indicated on the DC ammeter is  $2.20\text{mA} \pm 0.35\text{mA}$ .
10. Remove the short-circuit from R231 and C1 and restore the PB-1 connector to its original state.
11. Remove the jumpers and DC ammeter and reconnect the PB-1 connector.
12. Set the BRIGHTNESS and CONTRAST controls to their maximum positions and confirm that the ABL operates (OVERLOAD lamp lights up).

4. Select the built-in all-white signal (Set the WHITE/OPERATE/SET UP selector on HB board to WHITE). Don't do it in free run.
5. Confirm that the reading on the digital multimeter of TP3 on PA board is between +31.0V and +33.5V.
6. If the reading on the digital multimeter of TP3 is between +31.0V and +33.5V and more than 32.5V, mount a 1MΩ1/4W resistor (metal-film) should be mounted at the portion of R239 on PA board. (Normally in this portion no component is mounted.)
7. Short-circuit R213 on PA board.
8. Short-circuit C1 on BI board.
9. Rotate the BRIGHTNESS and CONTRAST controls and confirm that the raster disappears when the value indicated on the DC ammeter is  $2.20\text{mA} \pm 0.35\text{mA}$ .
10. Remove the short-circuit from R213 and C1 and restore the PB-1 connector to its original state.
11. Remove the jumpers and DC ammeter and reconnect the PB-1 connector.
12. Set the BRIGHTNESS and CONTRAST controls to their maximum positions and confirm that the ABL operates (OVERLOAD lamp lights up).

#### BEAM CURRENT PROTECTOR 2 ( R239)

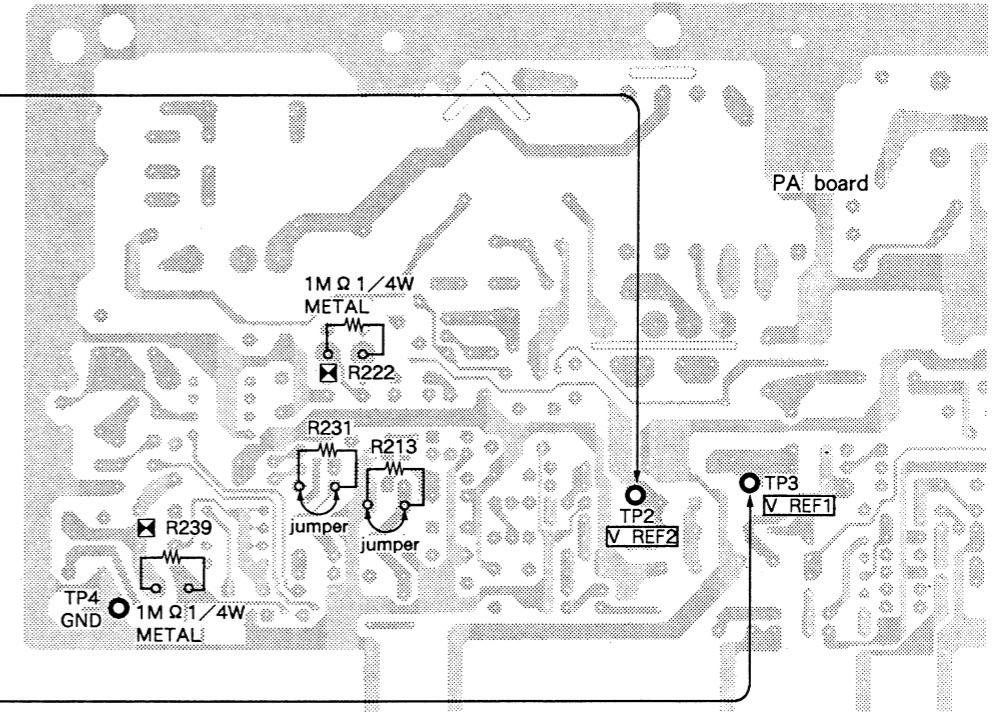
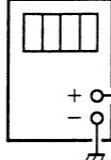
When replacing the following components (marked  on the schematic diagram), make this confirmation.

- PA Board . . D204, D216, R203, R204, R231, R232, R237, R238, R239, R240, R241, R247, IC3  
 PB Board . . R3, R4, R6, FBT
1. Remove the PB-1 connector from PB board.
  2. Connect a DC ammeter between Pin ① and Pin ② of the PB-1 connector and short-circuit Pin ③ and Pin ④ with a jumper.

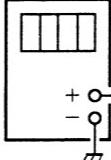


3. Connect a digital multimeter to TP3 and TP4 (GND) of PA board.

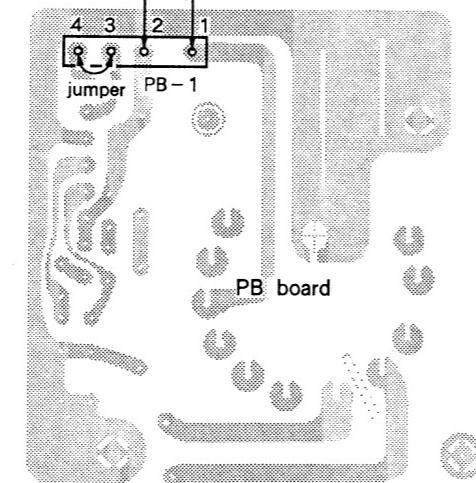
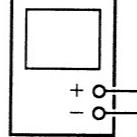
digital multimeter



digital multimeter



DC ammeter



C1 jumper

### HIGH VOLTAGE HOLD DOWN ADJUSTMENT AND CONFIRMATION

( R227, R228)

When replacing the following components (marked  on the schematic diagram), make this adjustment.

- DCT block
- PA Board .D205, D207, D215, IC2, R201, R202, R213, R214, R225, R226, R227, R228, R243, R245

It is necessary to use an electrostatic voltmeter or equivalent for this adjustment. Connect the electrostatic voltmeter to the anode cap.

Even though an electrostatic voltmeter may not be used, connect digital multimeter to  $\textcircled{7}$ . pin of IC4 on PA Board.

#### In case of using an electrostatic voltmeter

1. Connect the electrostatic voltmeter to the anode cap and connect a digital multimeter to TP1 and TP4 (GND) on PA board.

**Note:** Use an electrostatic multimeter which is calibrated and which has  $2 \times 10^9 \Omega$  or more input impedance. (Example: ESH-27X or ESH-23X of the SINGER COMPANY)

- Use a digital multimeter which has 4 digits or more.
- 2. Receive a color bar signal and set the CONTRAST and BRIGHTNESS controls to the preset positions. (manual switch is OUT $\square$ .)
- 3. Determine the values of R227 and R228 as to get voltage of  $9.55 \pm 0.13\text{V}$  at TP1.
- 4. Connect  $500\text{k}\Omega$  variable resistor with R126 in parallel on PA board.
- 5. Confirm that the reading on the electrostatic voltmeter drops abruptly from  $28.0\text{kV} \sim 30.0\text{kV}$  to  $0\text{V}$  by turning slowly the  $500\text{k}\Omega$  variable resistor so that the value of the resistor decrease from maximum value.
- 6. Remove the  $500\text{k}\Omega$  variable resistor from R126 and confirm again that the voltage of the anode is  $27.0\text{kV} \pm 0.1\text{kV}$ .

#### In case of not using an electrostatic voltmeter (using a digital multimeter.)

1. Connect the digital multimeter to TP1 and TP4 (GND) and to Pin  $\textcircled{7}$  of IC4 and TP4 (GND).
2. Receive a color bar signal and set the CONTRAST and BRIGHTNESS controls to the preset positions.
3. Determine the values of R227 and R228 as to get voltage of  $9.40 \pm 0.13\text{V}$  at TP1.
4. Connect  $500\text{k}\Omega$  variable resistor with R126 in parallel on PA board.
5. Confirm that the raster disappears when the voltage at Pin  $\textcircled{7}$  of IC4 reaches  $9.40 \pm 0.13\text{V}$  by turning slowly the  $500\text{k}\Omega$  variable resistor so that the value of the resistor decrease from maximum value.
6. Remove the  $500\text{k}\Omega$  variable resistor from R126.

### HIGH VOLTAGE ADJUSTMENT

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- DCT I
- PA Bo

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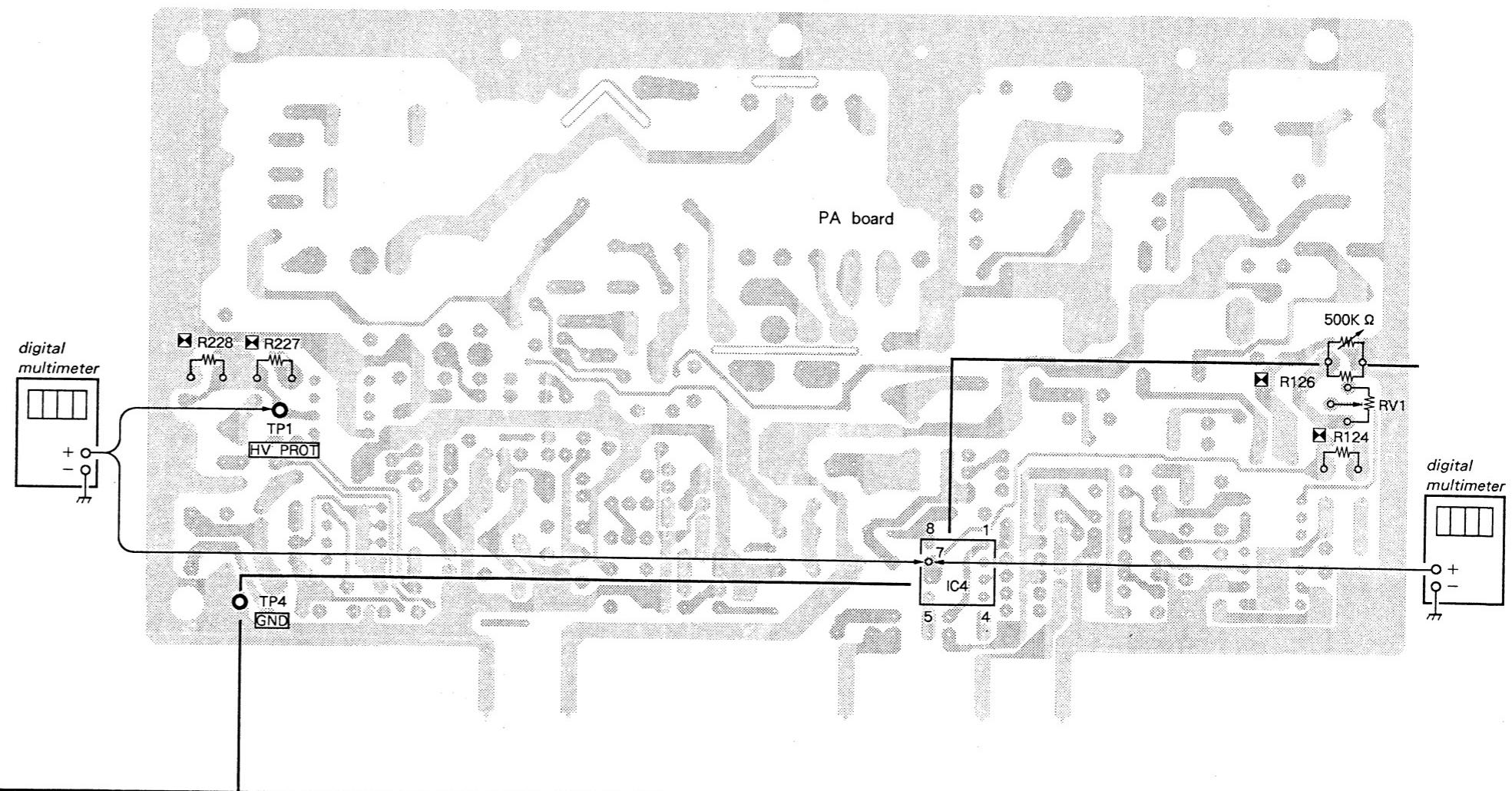
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**Capacitance voltmeter** (using a

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'4 (GND).

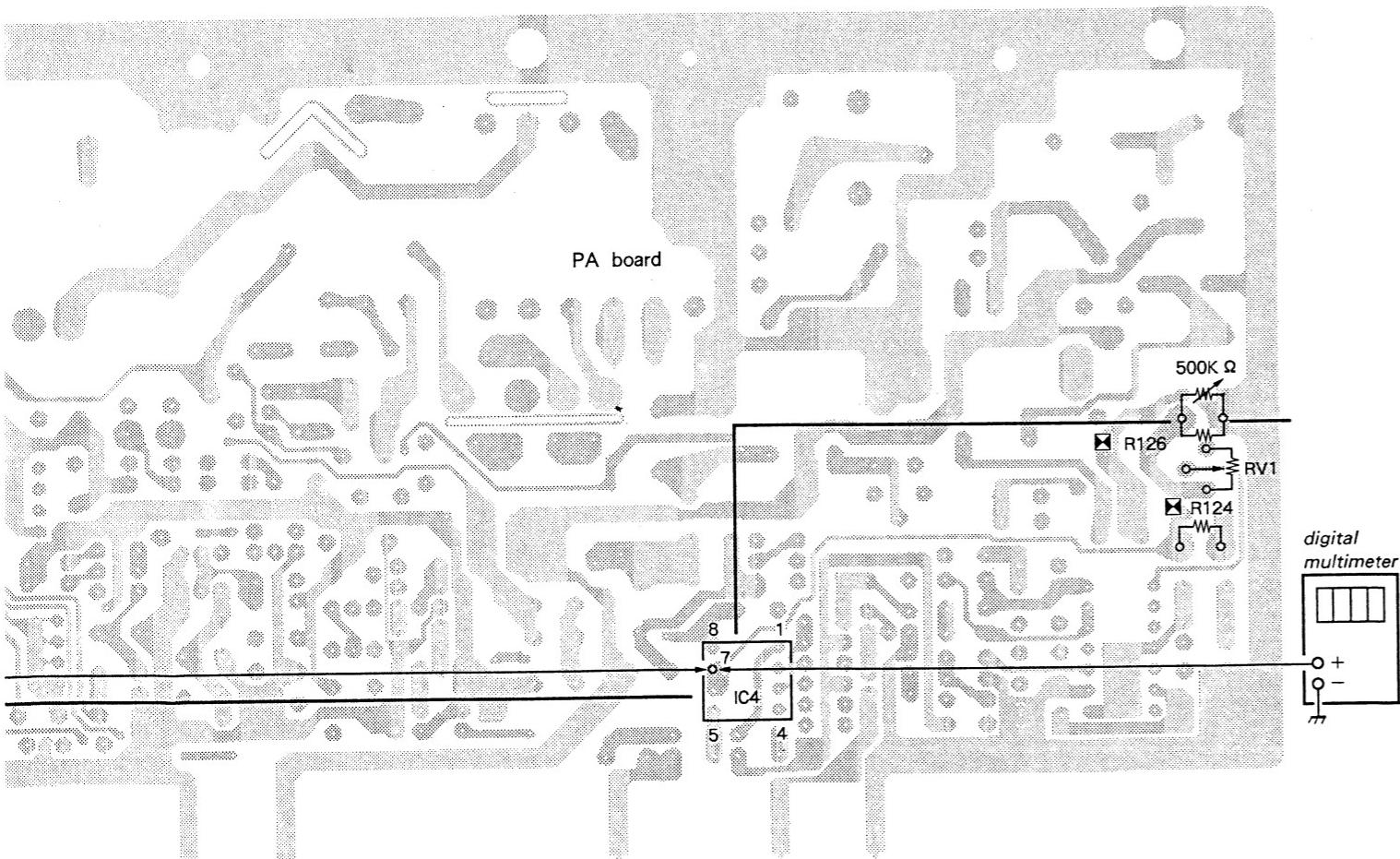
and set the CONTRAST and  
the preset positions.

R27 and R228 as to get vol-

appears when the voltage at

so that the value of the re-  
um value.

resistor from R126.



## HIGH VOLTAGE REGULATOR CONFIRMA- TION

(☒ R124, R126)

When replacing the following components (marked  on the schematic diagram), make this adjustment.

- DCT block  
PA Board . . D216, IC1, IC4, R123, R124, R125,  
R126, R136, R137, R138, R203,  
R204, RV1

It is necessary to use an electrostatic voltmeter or equivalent for this adjustment. Connect the electrostatic voltmeter to the anode cap.

Even though an electrostatic voltmeter may not be used, connect digital multimeter to (7) pin of IC4 on PA Board.

**Note:** Use an electrostatic voltmeter which is calibrated, and which has  $2 \times 10^9 \Omega$  or more input impedance.

example: ESH-27X or ESH-23X of the  
SINGER COMPANY

Use a digital multimeter which has 4 digit or more.

Use a digital multimeter which has 4 digit or more.

- In case of using an electrostatic voltmeter
    1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position.  
(manual switch is out □)

2. Turn RV1 on the PA Board for a maximum reading on the electrostatic voltmeter. (Fully clockwise)
  3. Confirm that the indicated value on the electrostatic voltmeter is  $27.40 \text{ kV} \pm 0.1 \text{ kV}$  at this time.
  4. If necessary, select the value of R124 and R126 (1/4W metal-film) and repeat above step 2 through 4.
  5. After confirmation, adjust RV1 for  $27.0 \text{ kV} \pm 0.1 \text{ kV}$  on the electrostatic voltmeter.

- In case of using a digital multimeter

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position.  
(manual switch is out  $\square$ )
  2. Connect the digital multimeter to Pin ⑦ of IC4 and TP4 (GND) on PA board.
  3. Set RV1 on PA board to its mechanical center.
  4. Select resistance values for R124 and R126 which provide a voltage reading of  $8.75V \pm 0.1V$  at Pin ⑦ of IC4 and mount.

## 4-7. CIRCUIT ADJUSTMENTS

- To make the following adjustments, unless otherwise specified, the controls knobs and switches shall be preset as described below.

### FRONT PANEL

- INPUT selector ..... 1
- CONTRAST MANUAL switch ..... PRESET
- BRIGHTNESS MANUAL switch ..... PRESET
- CHROMA MANUAL switch ..... PRESET
- PHASE MANUAL switch ..... PRASSET
- SCAN MODE switch
- UNDER SCAN ..... NOR
- H. DELAY ..... NOR
- V. DELAY ..... NOR
- SCREEN switch (R) ..... NOR
- SCREEN switch (G) ..... NOR
- SCREEN switch (B) ..... NOR
- APT switch ..... NOR
- BLUE ONLY switch ..... NOR
- MODE selector ..... AUTO
- SUB CONTROL PANEL
- FORMAT button ..... CODED
- INPUT button ..... A
- SYNC button ..... INT
- COLOR SYSTEM button ..... NTSC (BVM-1311/1911)  
PAL (BVM-1411P/2011P)
- YC SEP button ..... COMB (BVM-1311/1911)  
TRAP (BVM-1411P/2011P)
- WHITE BALANCE button ..... D65/D93
- ASPECT button ..... 4 : 3
- PIC SETUP button ..... OFF
- SAD/VITC/MARKER button ..... OFF
- FILTER button ..... OFF
- MATRIX button ..... OFF
- PAL S/SECAM F/COMB S button ..... OFF
- CROSS HATCH button ..... OFF
- SPLIT SCREEN button ..... OFF
- WHITE button ..... OFF
- GRAY button ..... OFF
- APC switch ..... 2m sec

HX board

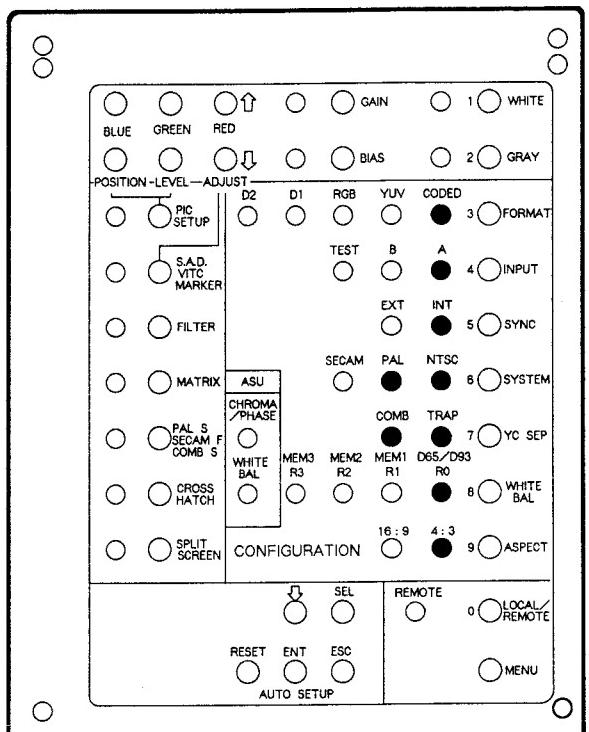
HW board

HA board

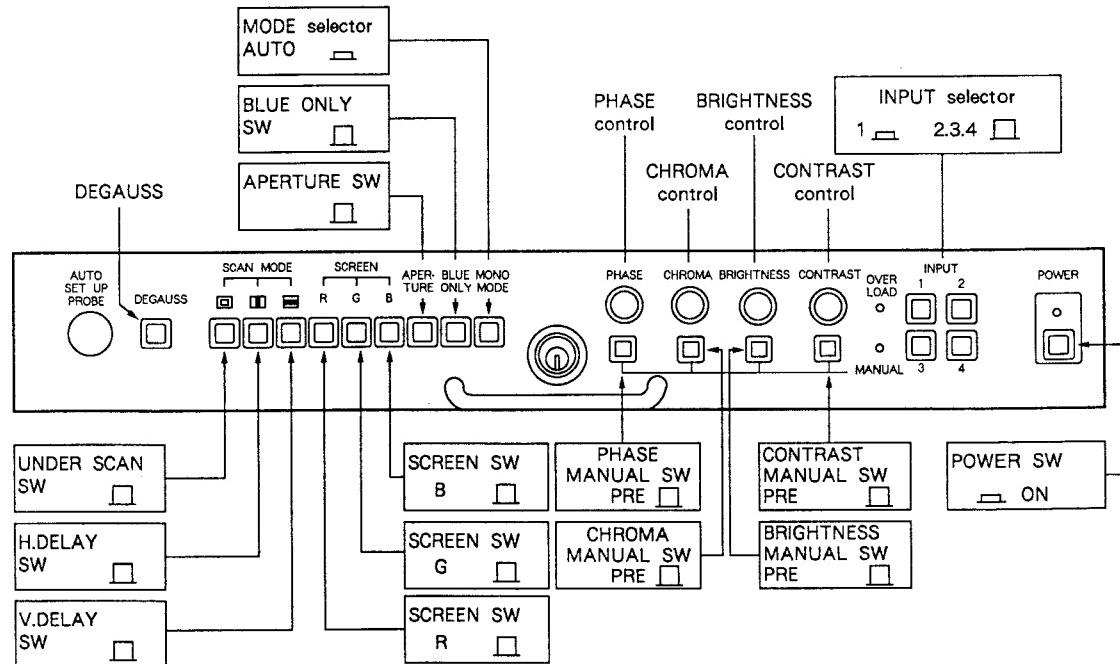
HY board

DA board

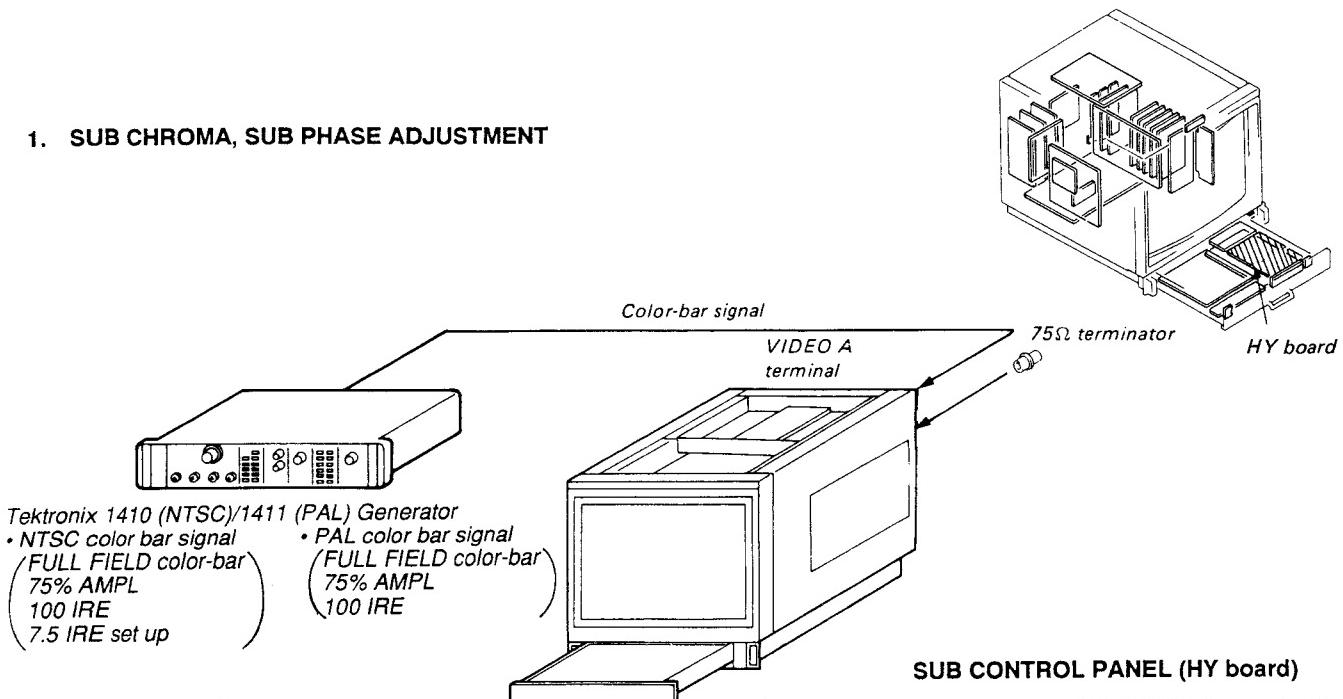
### SUB CONTROL PANEL (HY board)



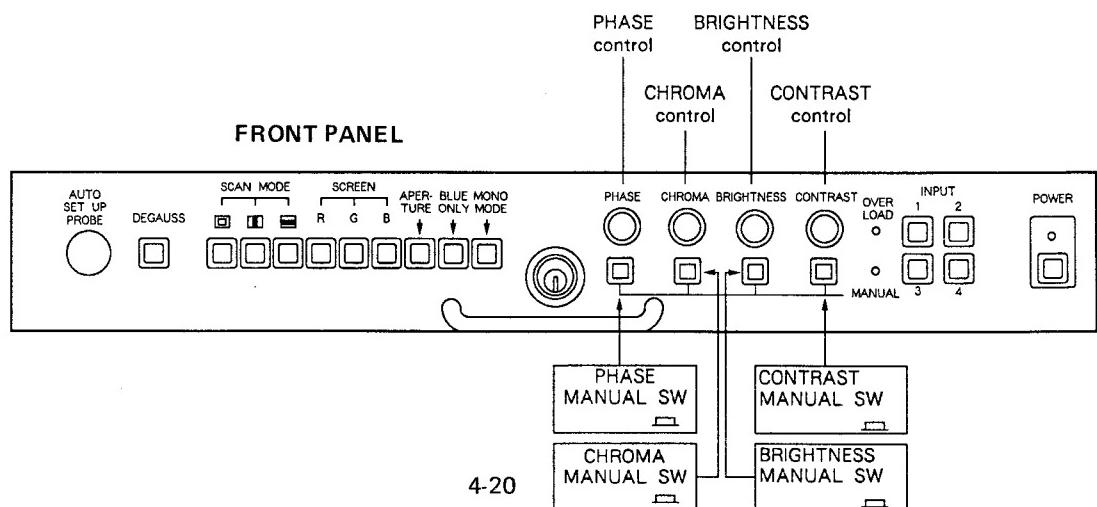
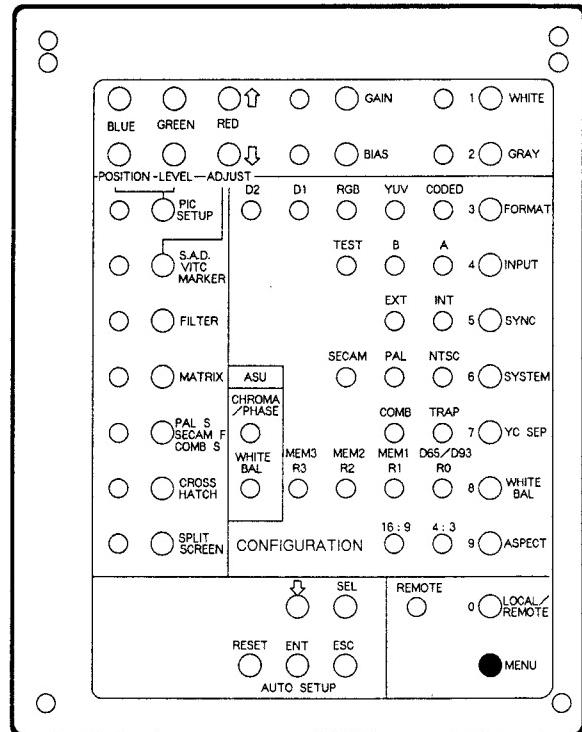
### FRONT PANEL



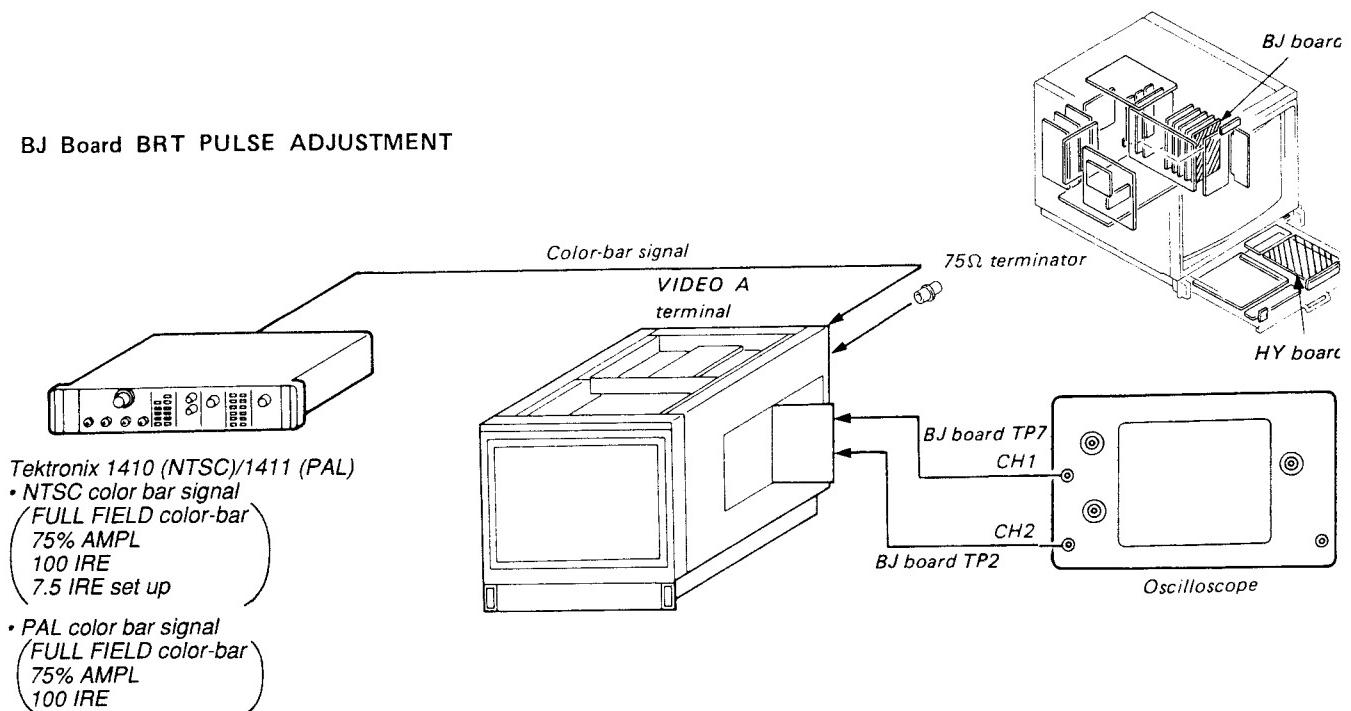
## 1. SUB CHROMA, SUB PHASE ADJUSTMENT



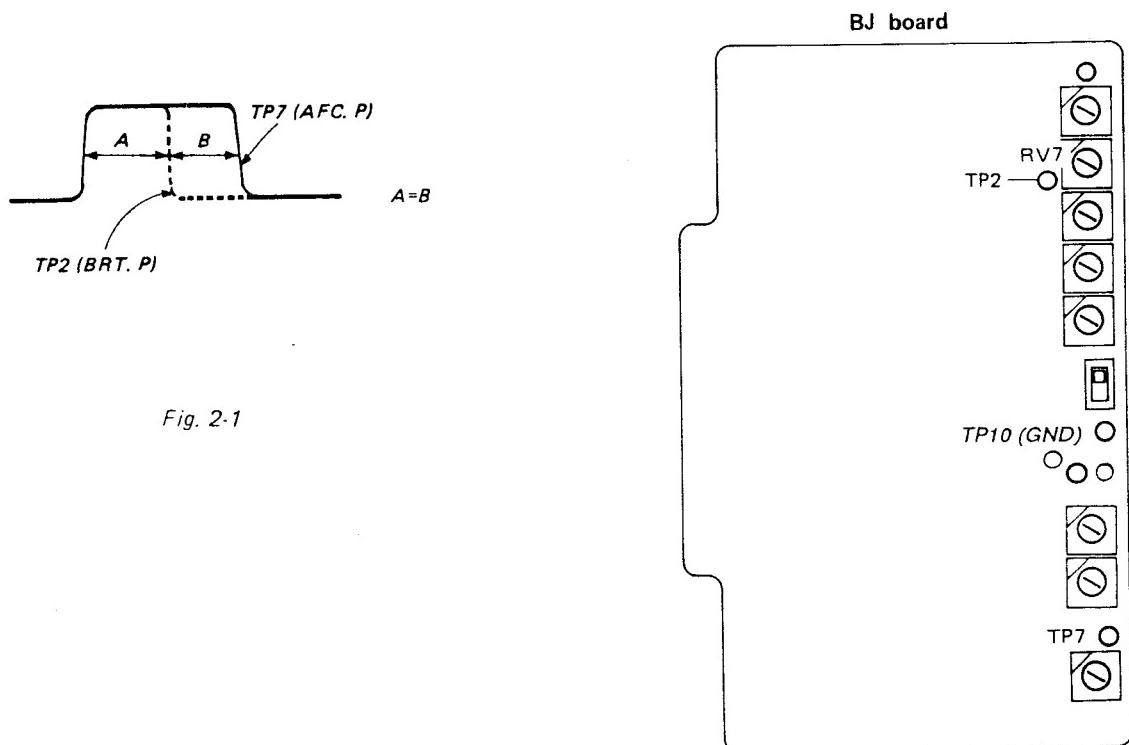
1. Press the MENU switch to select the PRESET menu.
2. CONTRAST, BRIGHT, CHROMA, PHASE MANUAL switch (FRONT PANEL).....MANUAL
3. Turn each volume control to adjust so that the value on the screen becomes 100.
4. Save the DATA.



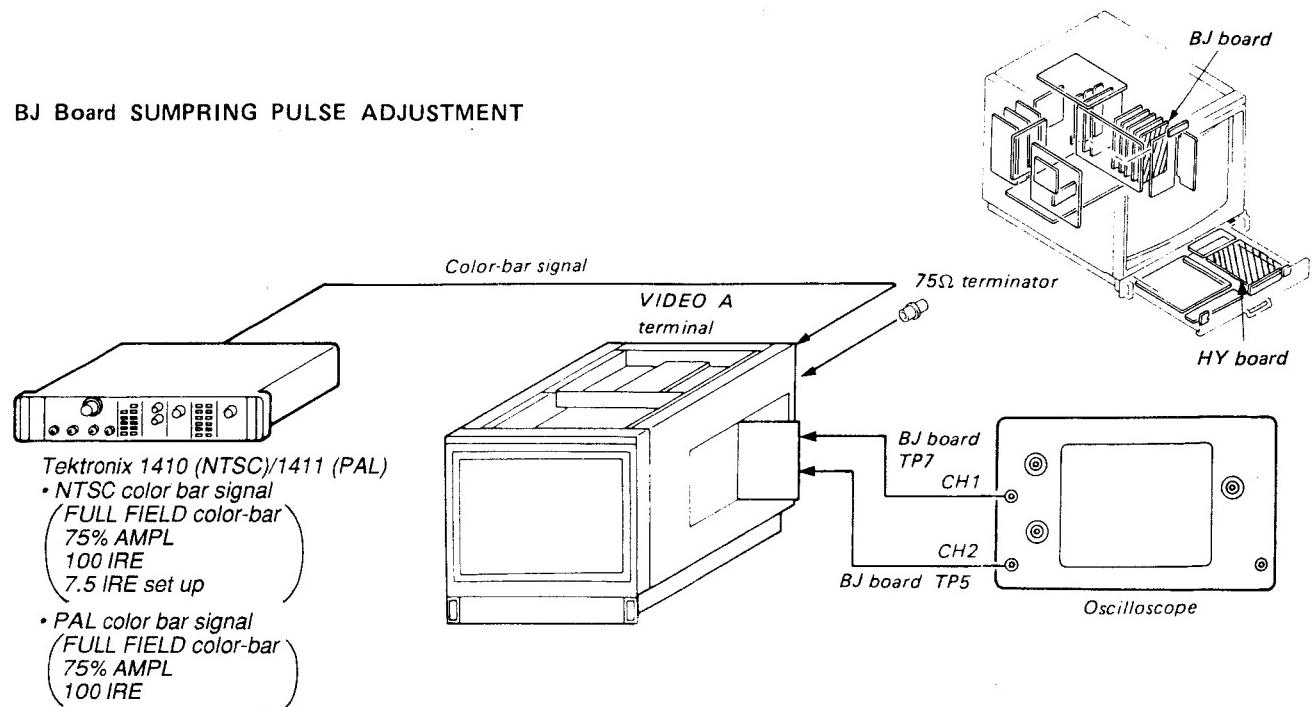
## 2. BJ Board BRT PULSE ADJUSTMENT



1. Input a color-bar signal to VIDEO A terminal of the set.
2. Connect an oscilloscope (CH1 probe) to the TP7 of BJ board and oscilloscope (CH2 probe) to the TP2 of BJ board.
3. Adjust RV7 to obtain the waveform on the oscilloscope as shown in Fig. 2-1.



## BJ Board SUMPRING PULSE ADJUSTMENT



1. Input a color-bar signal to VIDEO A terminal of the set.
2. Connect an oscilloscope (CH 1 probe) to the TP7 of BJ board and Connect an oscilloscope (CH 2 probe) to the TP5 of BJ board.
3. Adjust RV5 to obtain the waveform on the oscilloscope as shown in Fig. 2-2.

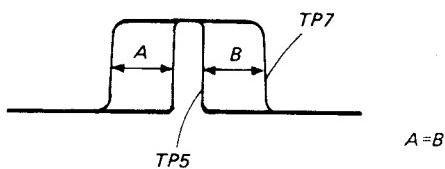
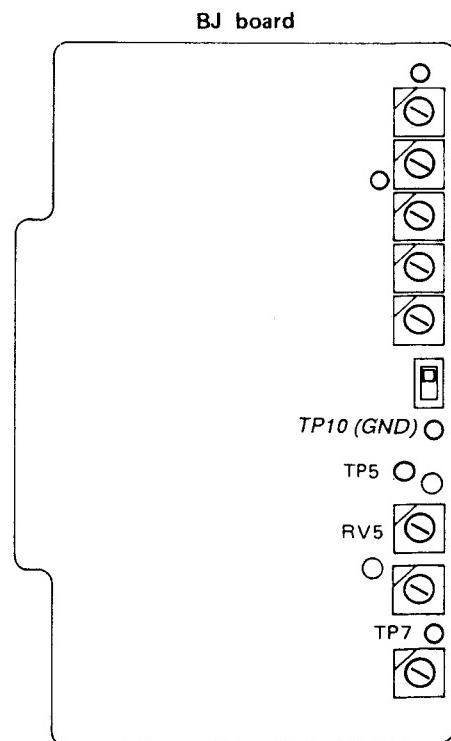
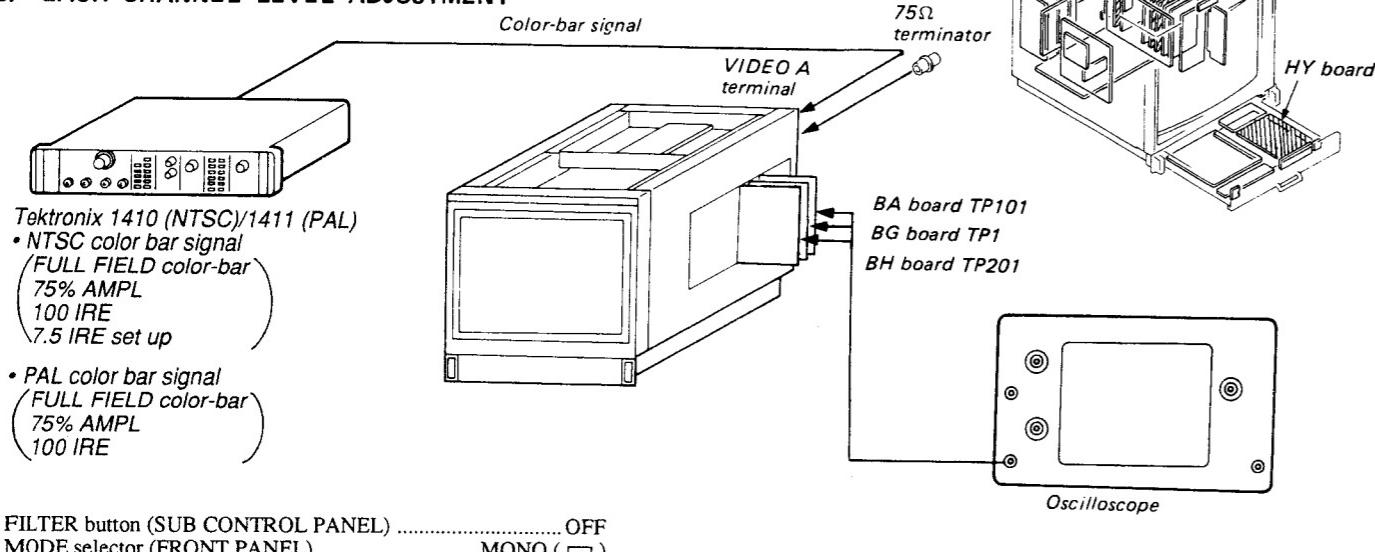


Fig. 2-2

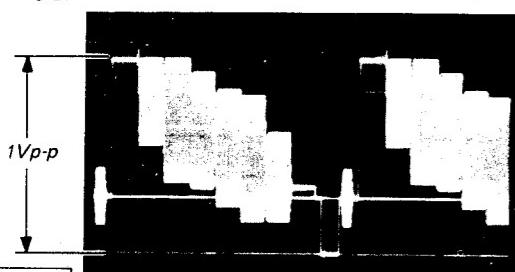


### 3. EACH CHANNEL LEVEL ADJUSTMENT



#### BA board

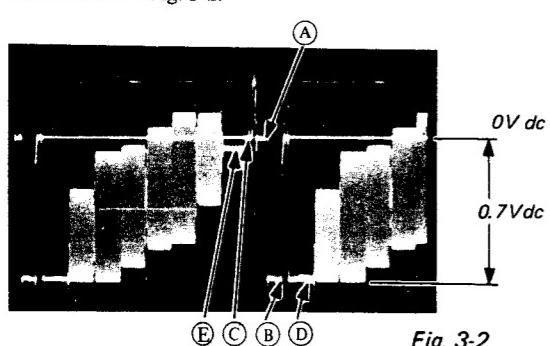
1. Input a color-bar signal to VIDEO A terminal to the set.
2. Connect an oscilloscope to the TP101 of BA board.
3. Adjust to 1.0Vp-p with RV101 of BA board as shown in Fig. 3-1.



#### BG board

4. Connect an oscilloscope to the TP1 of BG board.
5. Adjust to 1.0Vp-p with RV3 of BG board as shown in Fig. 3-1.
6. Connect an oscilloscope to the TP201 of BH board.

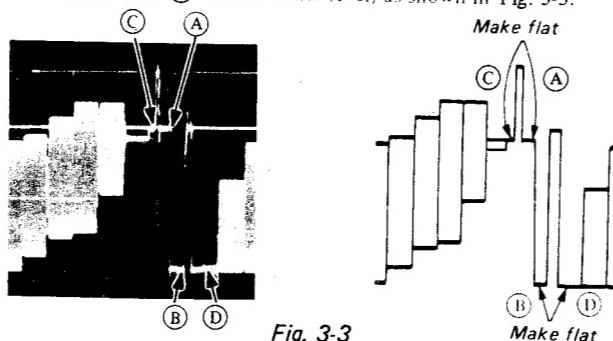
7. Adjust FRONT BRT VR so that **A** (black level) is 0V DC as shown in Fig. 3-2.
8. Adjust FRONT CONT VR so that **B** (100% white level) is -0.7V DC as shown in Fig. 3-2.



- (A) ..... Black level
- (B) ..... 100% White level
- (C) ..... 0 IRE level
- (D) ..... 100 IRE level
- (E) ..... 7.5 IRE level

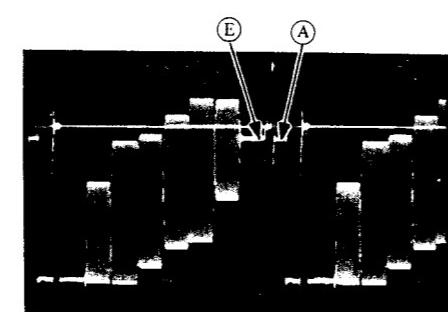
#### BH board

9. S2 (BH Board) .... 0 IRE  
Adjust RV1 of BH board so that the **C** (0 IRE level) coincides with **A** (Black level) as shown in Fig. 3-3.
10. Adjust RV3 of BH board so that the **D** (100 IRE level) coincides with **B** (100% white level) as shown in Fig. 3-3.

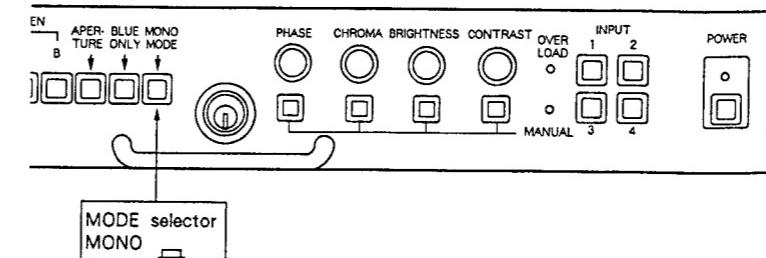


#### BH board

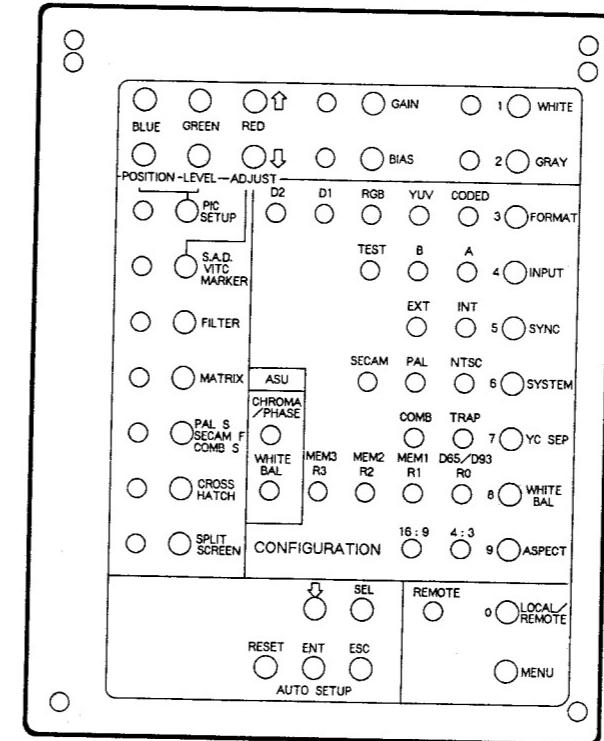
11. S2 (BH Board) .... 7.5 IRE  
Adjust RV2 of BH board so that the **E** (7.5 IRE level) coincides with **A** (Black level) as shown in Fig. 3-4.
12. Set S2 (BH Board) to AUTO.



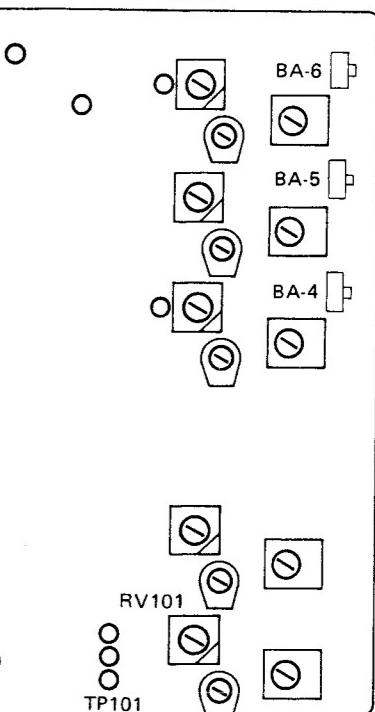
### FRONT PANEL



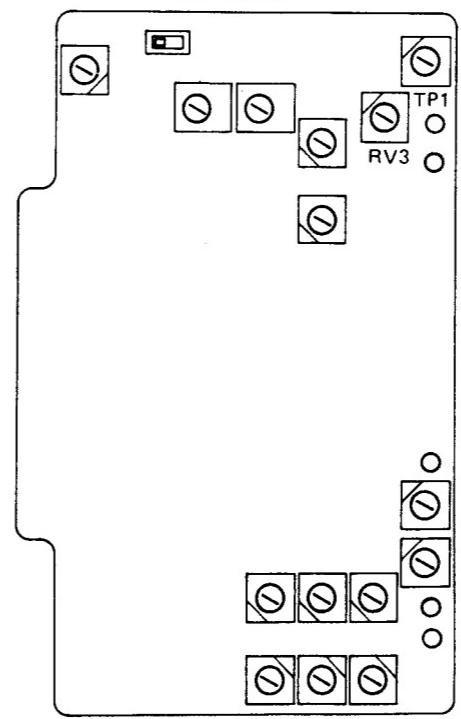
### SUB CONTROL PANEL (HY board)



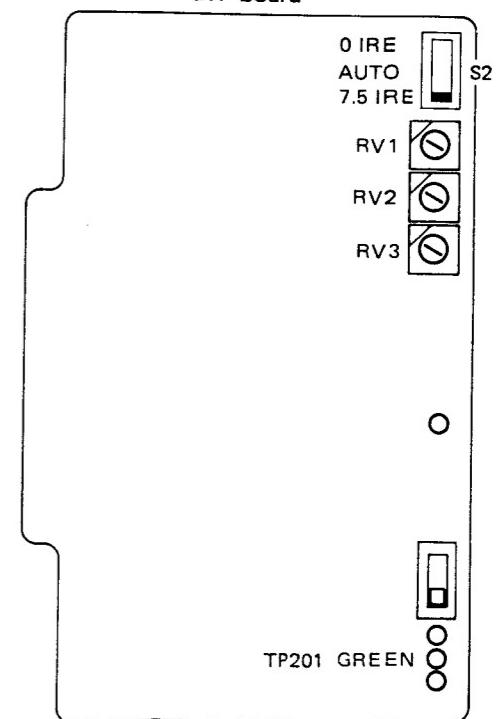
### BA board



### BG board

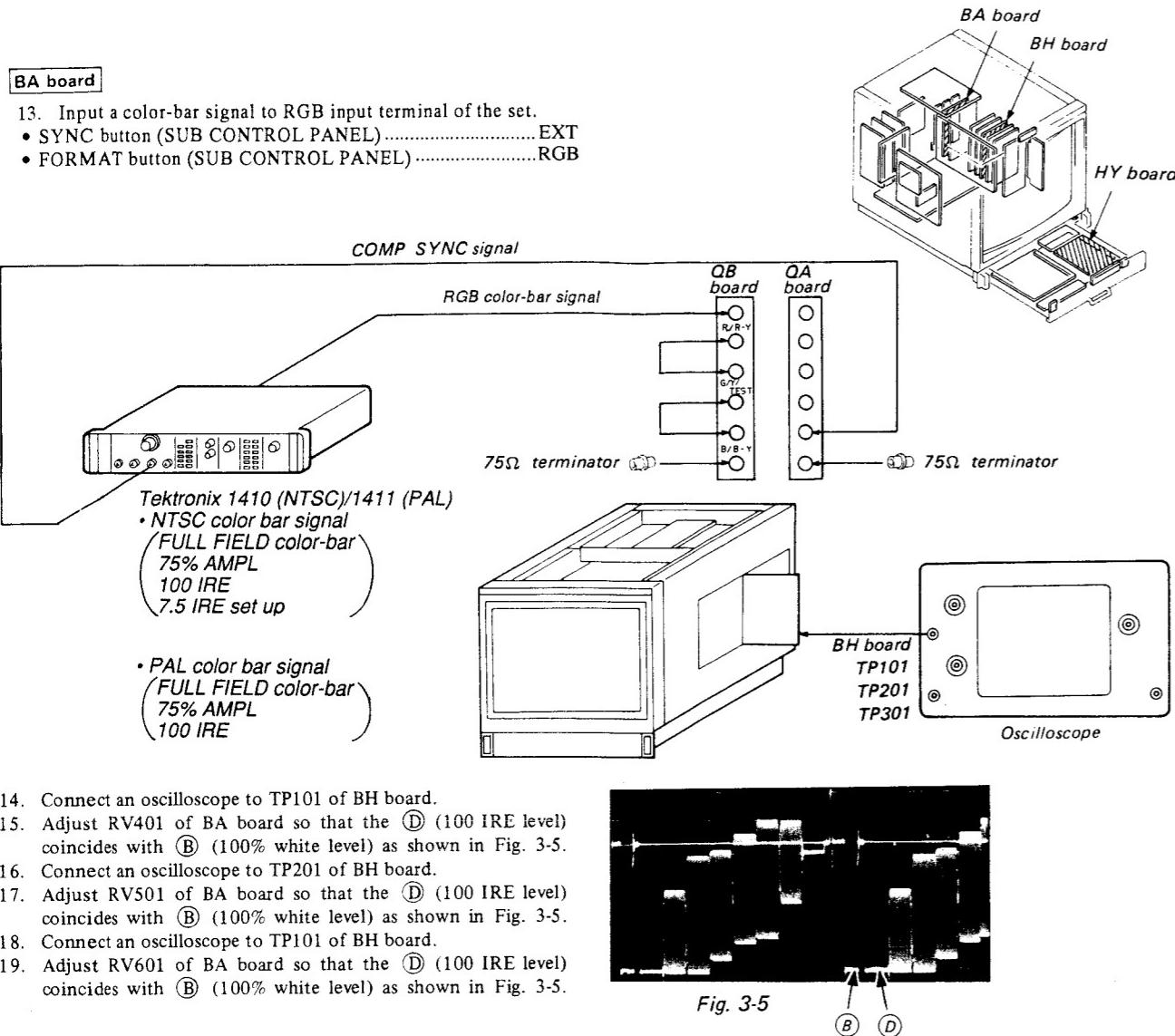


### BH board



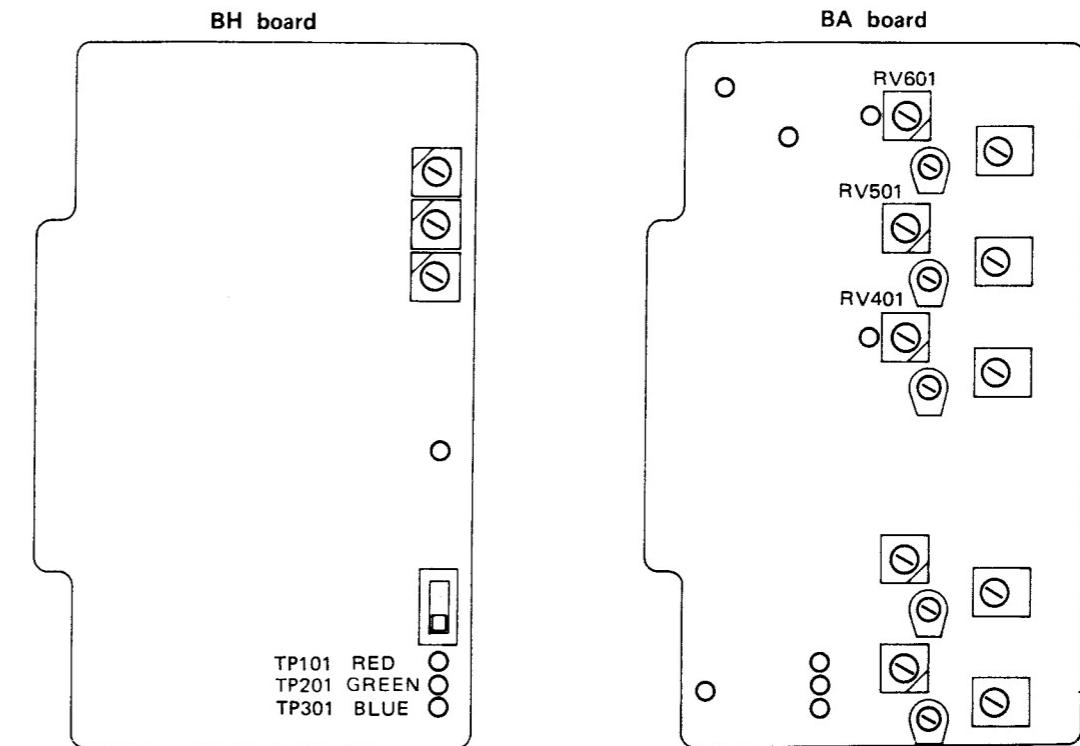
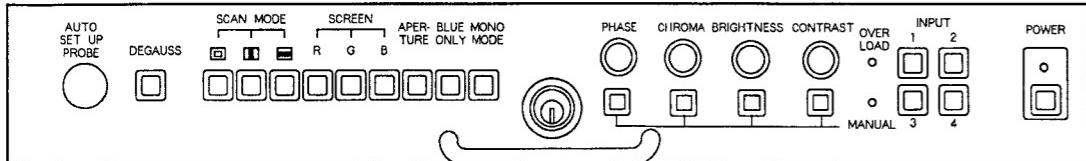
**BA board**

13. Input a color-bar signal to RGB input terminal of the set.
- SYNC button (SUB CONTROL PANEL) ..... EXT
  - FORMAT button (SUB CONTROL PANEL) ..... RGB

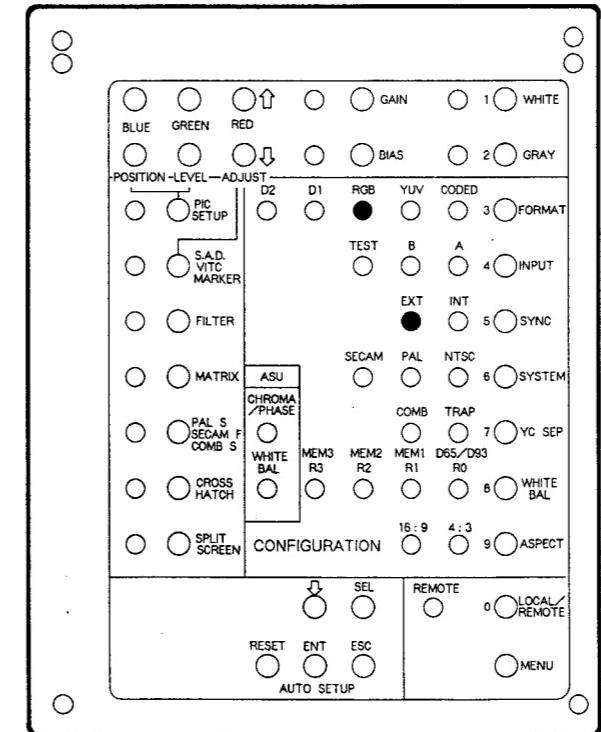


14. Connect an oscilloscope to TP101 of BH board.
15. Adjust RV401 of BA board so that the ④ (100 IRE level) coincides with ③ (100% white level) as shown in Fig. 3-5.
16. Connect an oscilloscope to TP201 of BH board.
17. Adjust RV501 of BA board so that the ④ (100 IRE level) coincides with ③ (100% white level) as shown in Fig. 3-5.
18. Connect an oscilloscope to TP101 of BH board.
19. Adjust RV601 of BA board so that the ④ (100 IRE level) coincides with ③ (100% white level) as shown in Fig. 3-5.

FRONT PANEL



SUB CONTROL PANEL (HY board)



#### 4. BA Board INPUT CIRCUIT FREQUENCY CHARACTERISTIC ADJUSTMENT

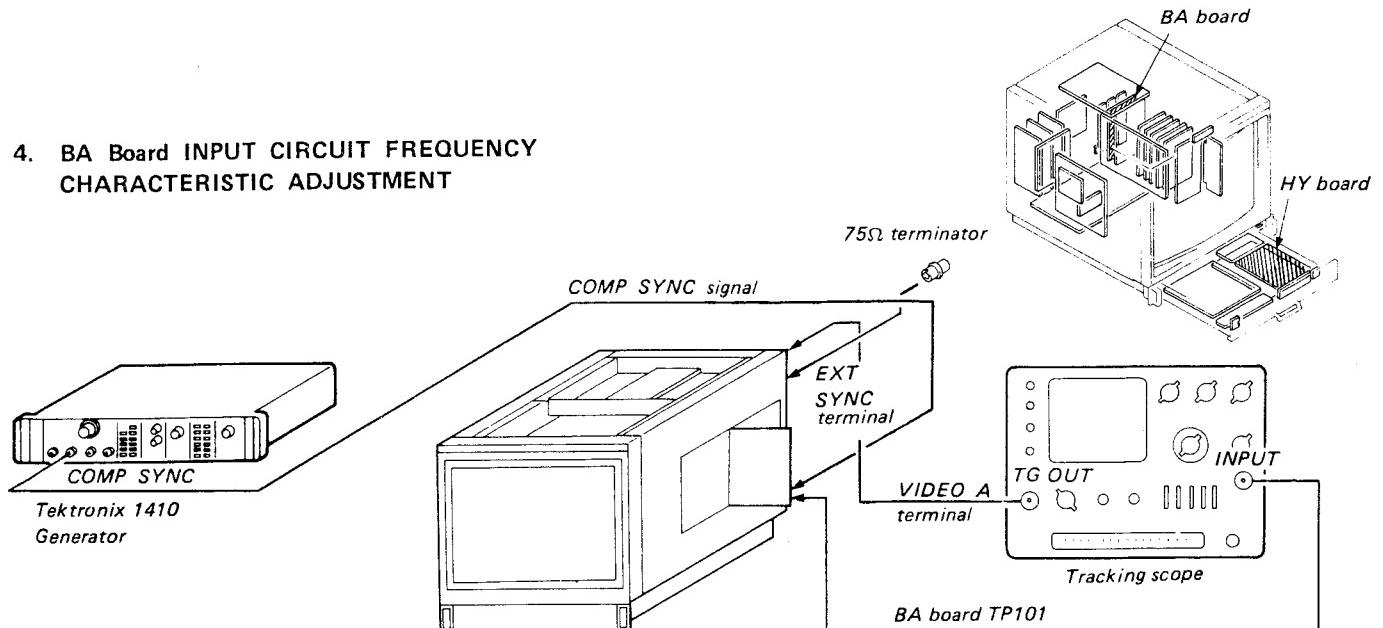


Fig. 4-1

1. Complete the connection as shown in Fig 4-1.
  - FORMAT button (SUB CONTROL PANEL) ..... CODED
  - INPUT selector (FRONT PANEL) ..... 1
  - SYNC button (SUB CONTROL PANEL) ..... EXT
  - CONTRAST control (FRONT PANEL) ..... Minimum
  - BRIGHTNESS control (FRONT PANEL) ..... Minimum
2. Adjust CV101 so that minimum as shown in Fig. 4-2.

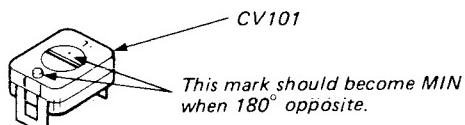


Fig. 4-2

3. Adjust output waveform peak to 12MHz with CV102 of the BA board as shown in Fig. 4-3.

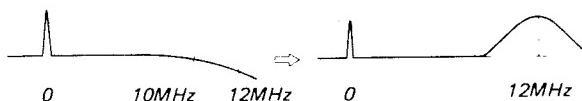


Fig. 4-3

4. Adjust CV101 of the BA board so that the output waveform becomes flat in a range of 0 to 10MHz as shown in Fig. 4-4.

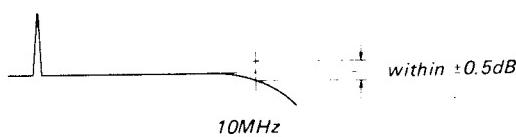
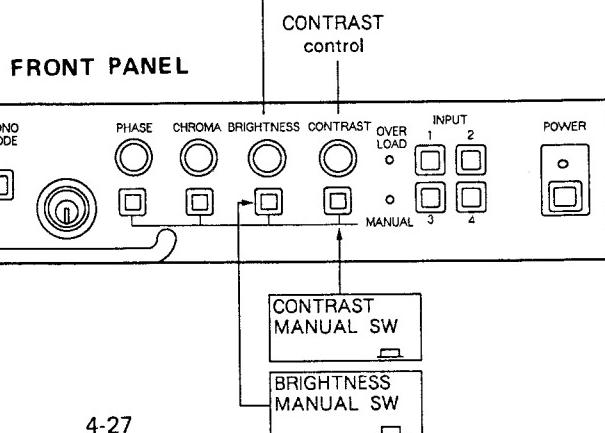
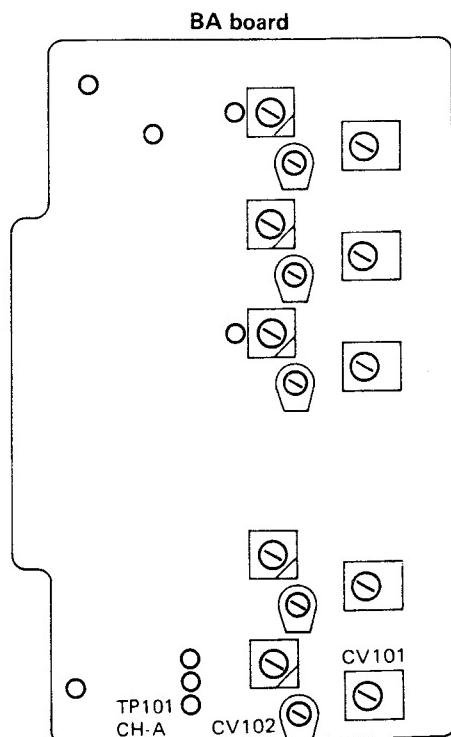
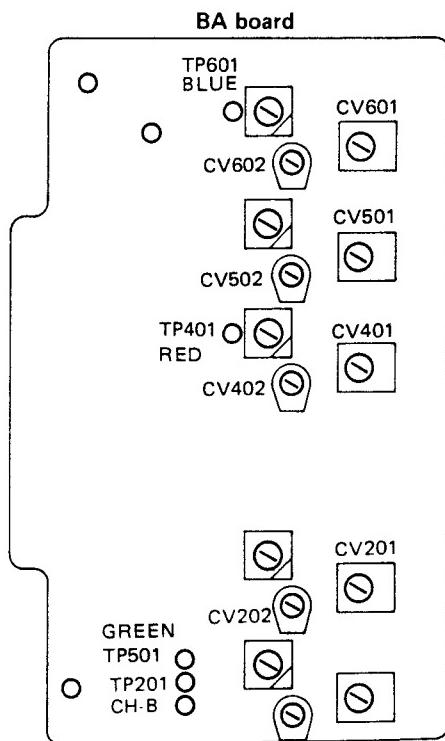


Fig. 4-4

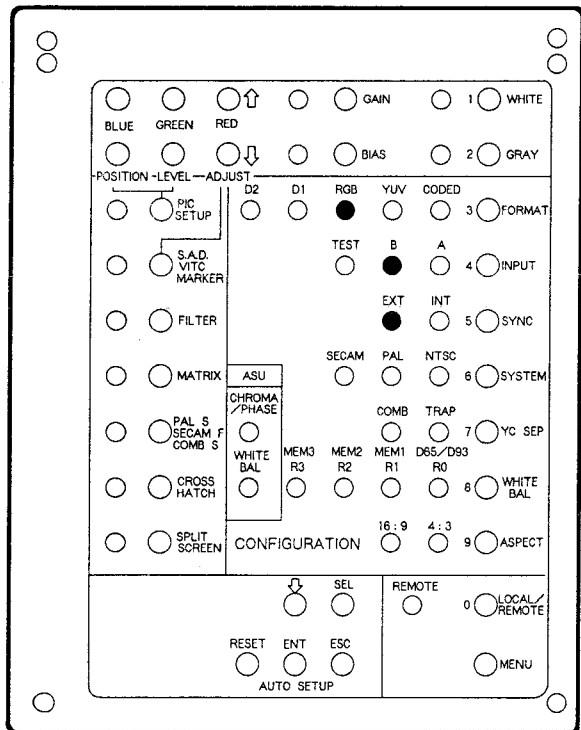


5. In the same way, perform the adjustment for 2 CH, under the following conditions.

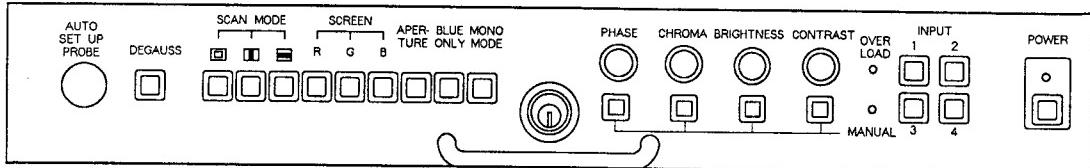
| INPUT    | INPUT button        | FORMAT button | TP<br>(BA board) | CV<br>(BA board) |
|----------|---------------------|---------------|------------------|------------------|
|          | (SUB CONTROL PANEL) |               |                  |                  |
| B        | B                   | CODED         | TP201            | CV201, 202       |
| R/R-Y    |                     | RGB           | TP401            | CV401, 402       |
| G/Y/TEST |                     | RGB           | TP501            | CV501, 502       |
| B/B-Y    |                     | RGB           | TP601            | CV601, 602       |



SUB CONTROL PANEL (HY board)



FRONT PANEL



## 5. BG Board FREQUENCY CHARACTERISTIC ADJUSTMENT

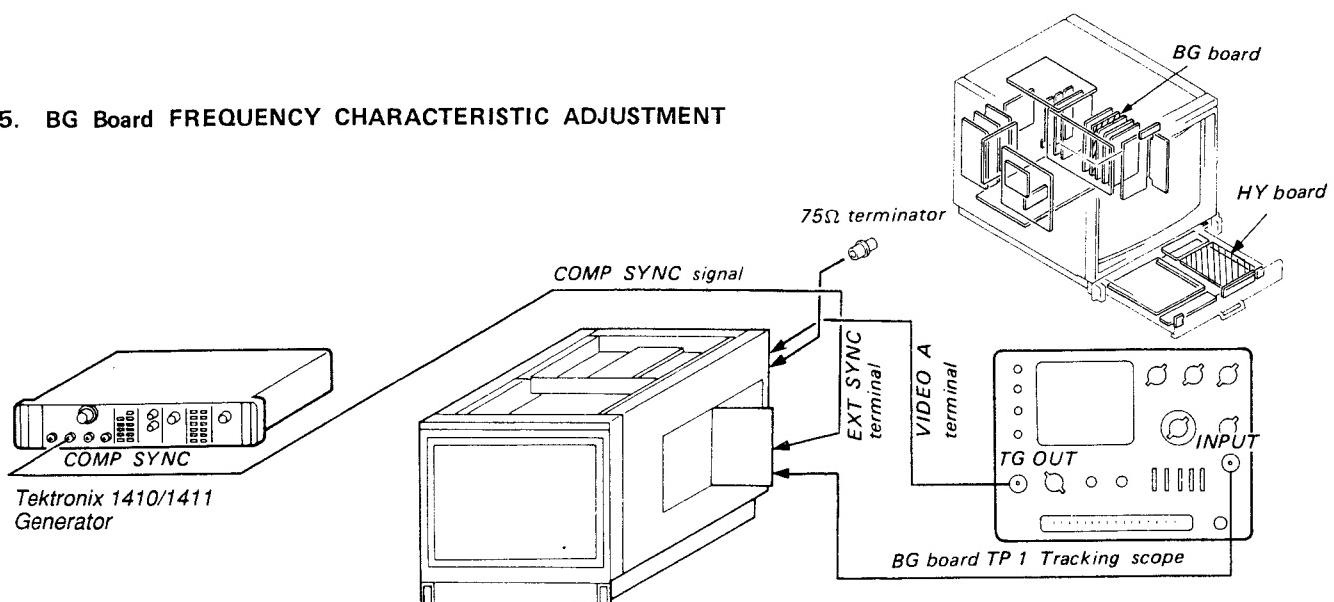


Fig. 5-1

1. Complete the connection as shown in Fig 5-1.
  - SYNC button (SUB CONTROL PANEL)..... EXT
  - CONTRAST control ..... Minimum
  - BRIGHTNESS control ..... Minimum
  - S1 (BG Board) ..... 4.5MHz (4.5 [ ] 6.5)
2. Adjust RV1, CV2 and CV3 of the BG board so that the output waveform becomes flat in a range of 0 to 10MHz as shown in Fig. 5-2. (within  $0 \pm 0.5$ dB)

\*Waveform movement by RV1, CV2, CV3

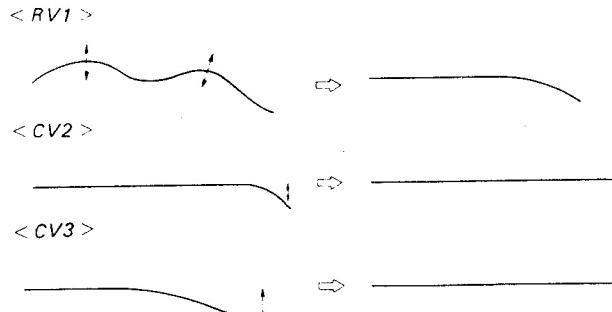
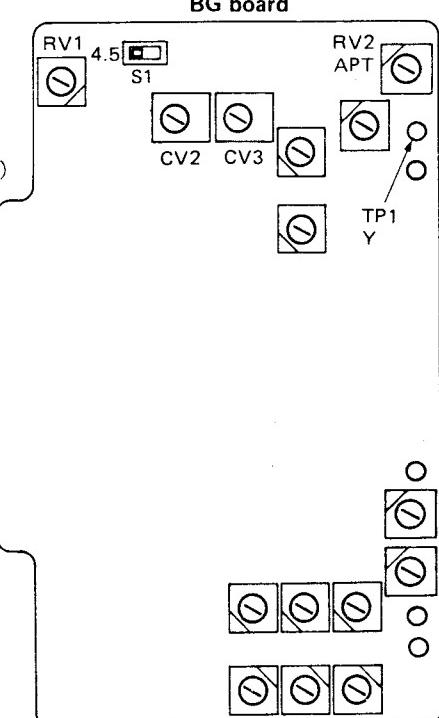


Fig. 5-2

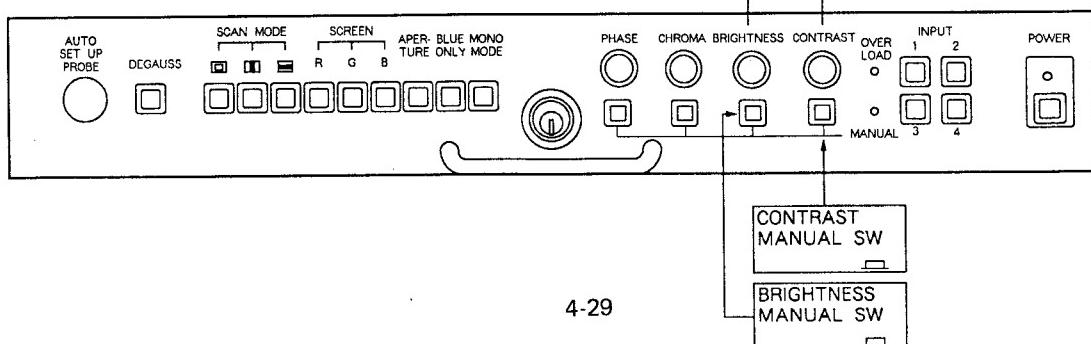
3. Adjust with RV2 (BG board) to the position in which the APT (Fig. 5-3.) begins to become effective.



Fig. 5-3



FRONT PANEL



## 6. COMPONENT INPUT LEVEL ADJUSTMENT

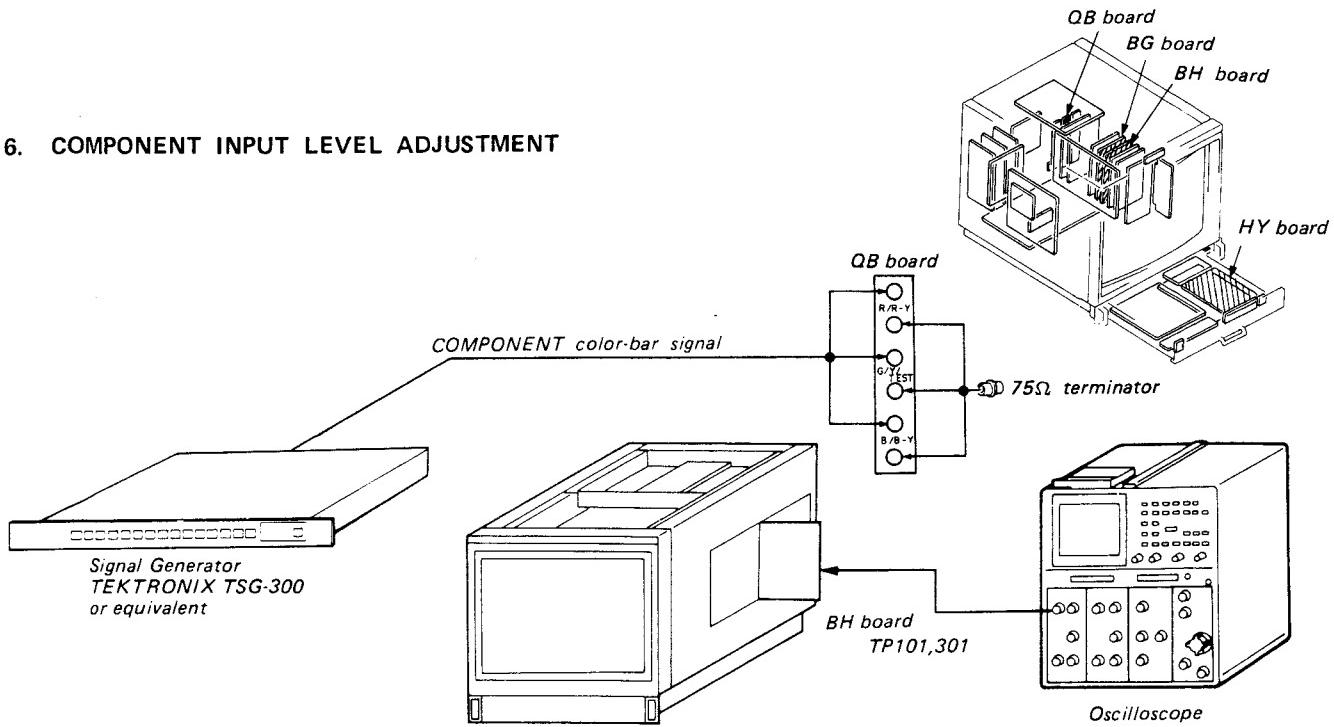


Fig. 6-1

1. Complete the connections as shown in Fig. 6-1.  
• FORMAT button (SUB CONTROL PANEL) ..... YUV
2. Connect an oscilloscope to the TP-101 of BH board.
3. Adjust RV21 of BG board so that the output waveform becomes flat. (Fig. 6-2)
4. Connect an oscilloscope to the TP301 of BH board.
5. Adjust RV22 of BG board so that the input waveform becomes flat. (Fig. 6-3)

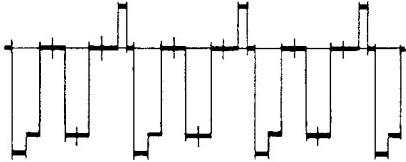


Fig. 6-2

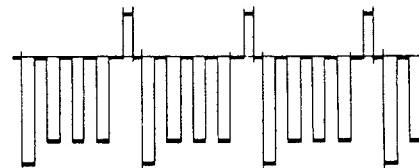
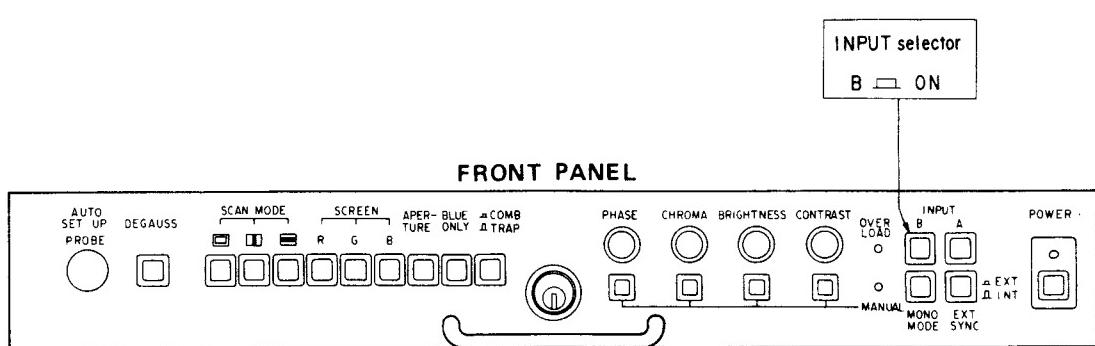
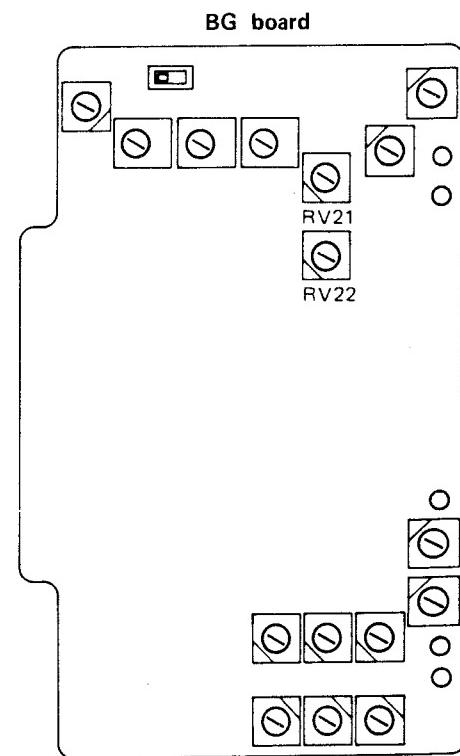
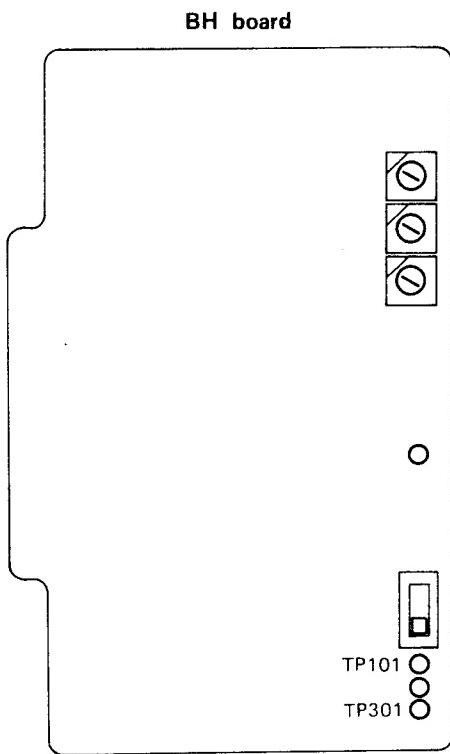
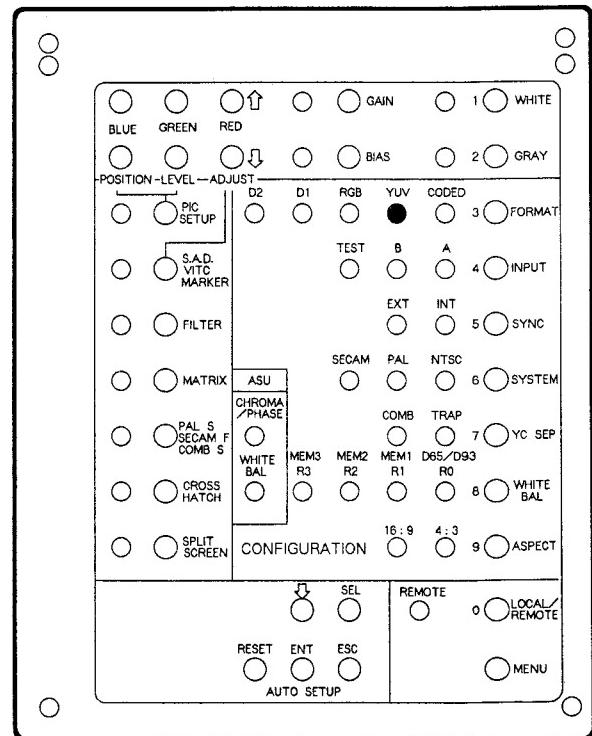


Fig. 6-3

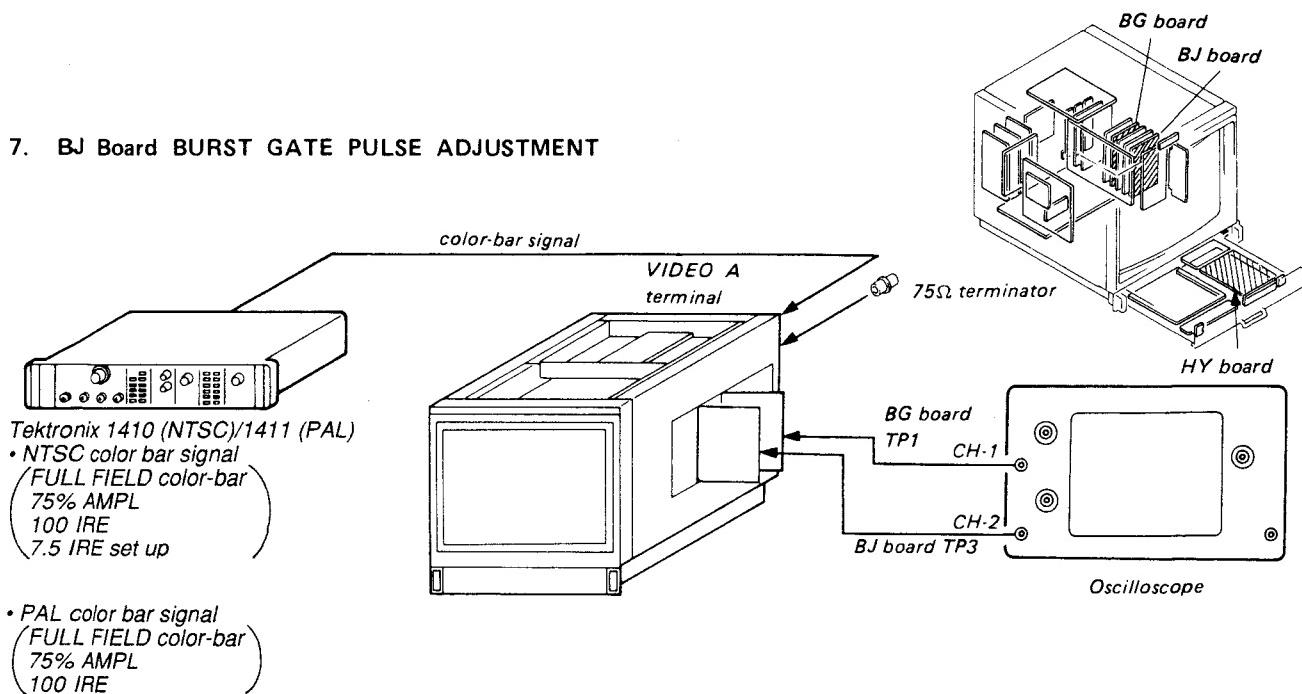




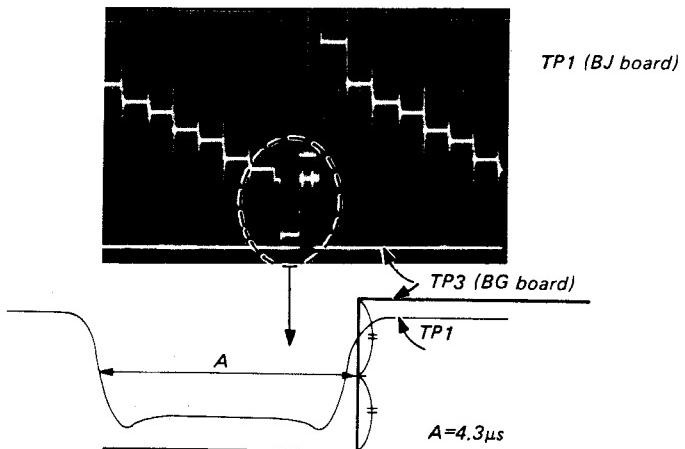
**SUB CONTROL PANEL (HY board)**



## 7. BJ Board BURST GATE PULSE ADJUSTMENT



1. Input a color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope (CH-1 probe) to the TP1 of BG board and connect an oscilloscope (CH-2 probe) to the TP3 of BJ board.
3. Adjust RV8 of BJ board so that the width A is  $4.3\mu s$  as shown in Fig. 7-1.



\* Adjust (A), from SYNC fall to B.G.P. (BURST GATE PULSE) rise, to  $4.3\mu s$ .

Fig. 7-1

4. Adjust RV4 of BJ board so that the burst gate pulse width is  $3.9\mu s$  as shown in Fig. 7-2.

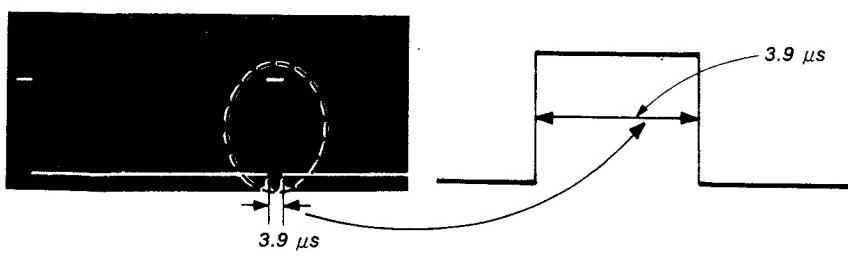
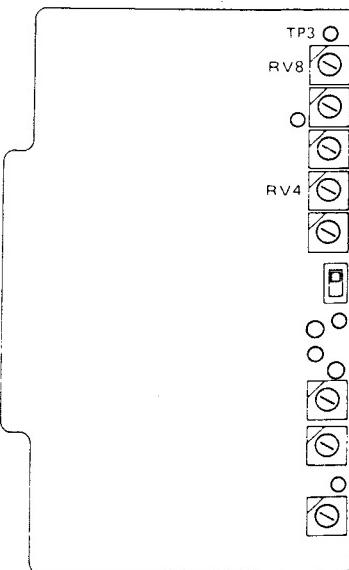
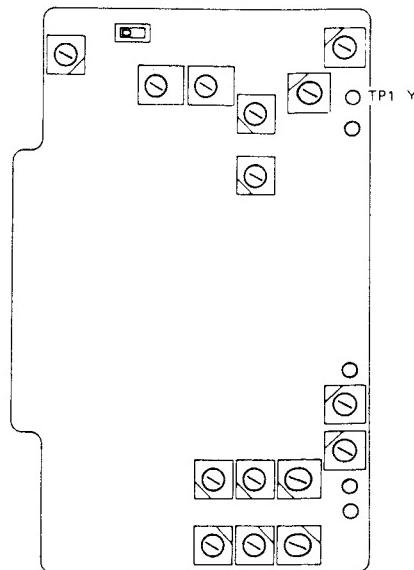


Fig. 7-2

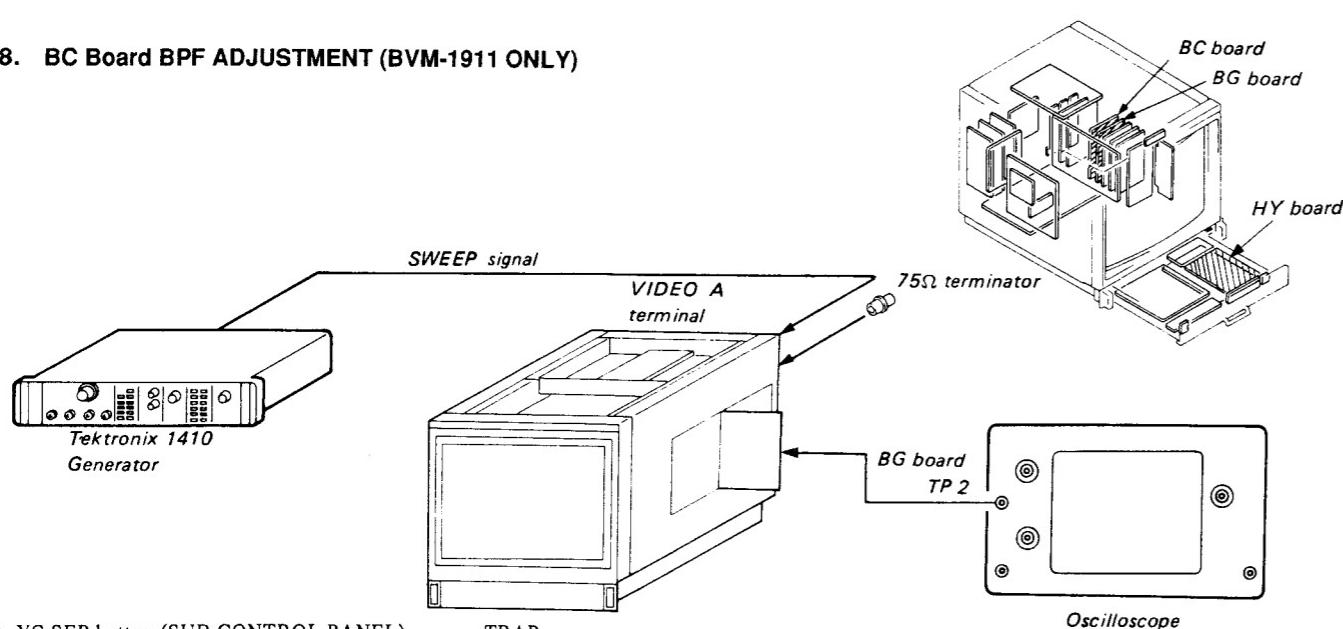
**BJ board**



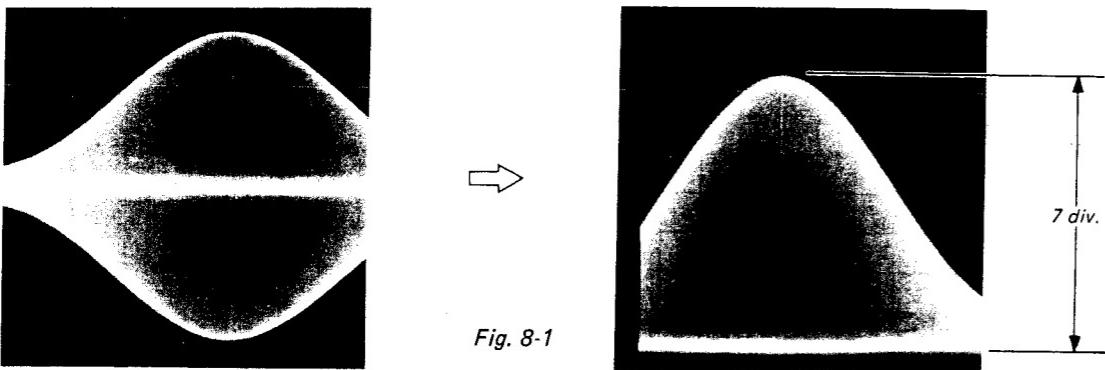
**BG board**



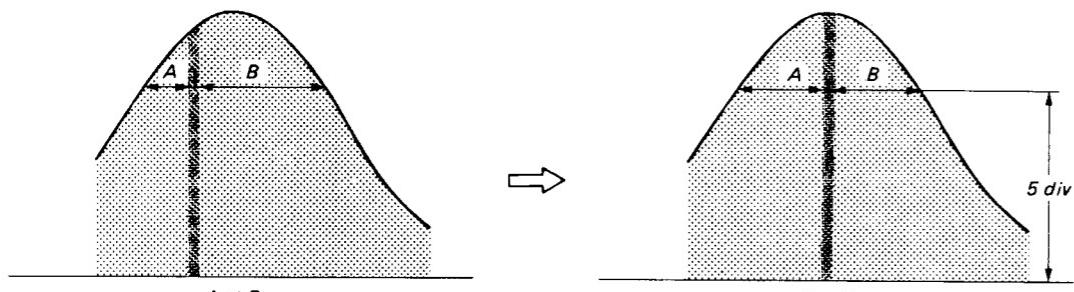
## 8. BC Board BPF ADJUSTMENT (BVM-1911 ONLY)



- YC SEP button (SUB CONTROL PANEL) ..... TRAP
- 1. Input SWEEP signal to the VIDEO A terminal of the set.
- 2. Connect an oscilloscope to the TP2 on the BG board.
- 3. Make the V/dw of oscilloscope into VARIABLE, and match the upper section of waveform to 7 div as shown in Fig. 8-1.

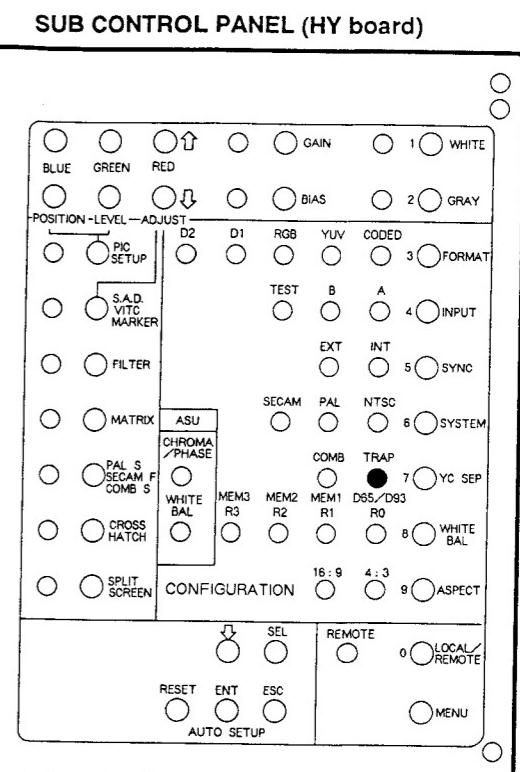
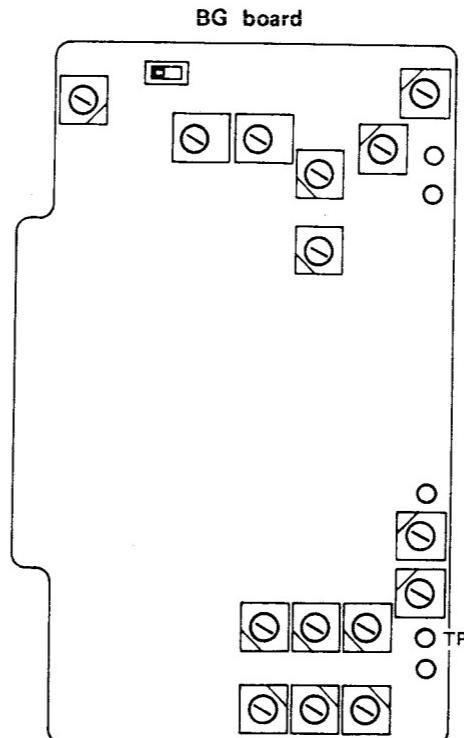
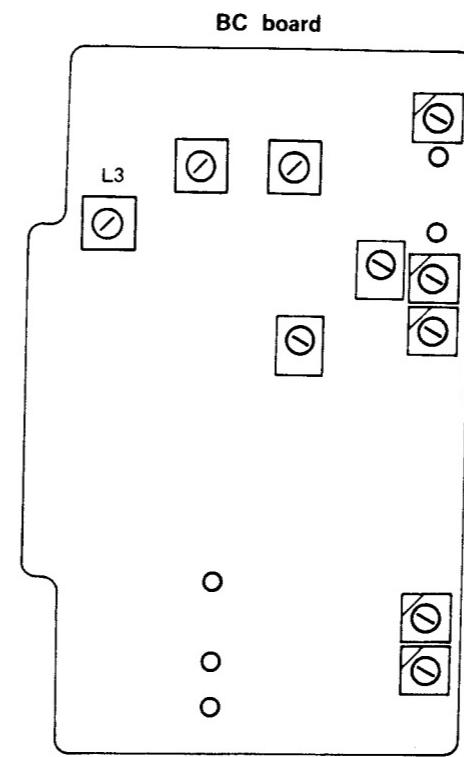


4. Adjust L3 on the BC board so that A is equal to B as shown in Fig. 8-2.

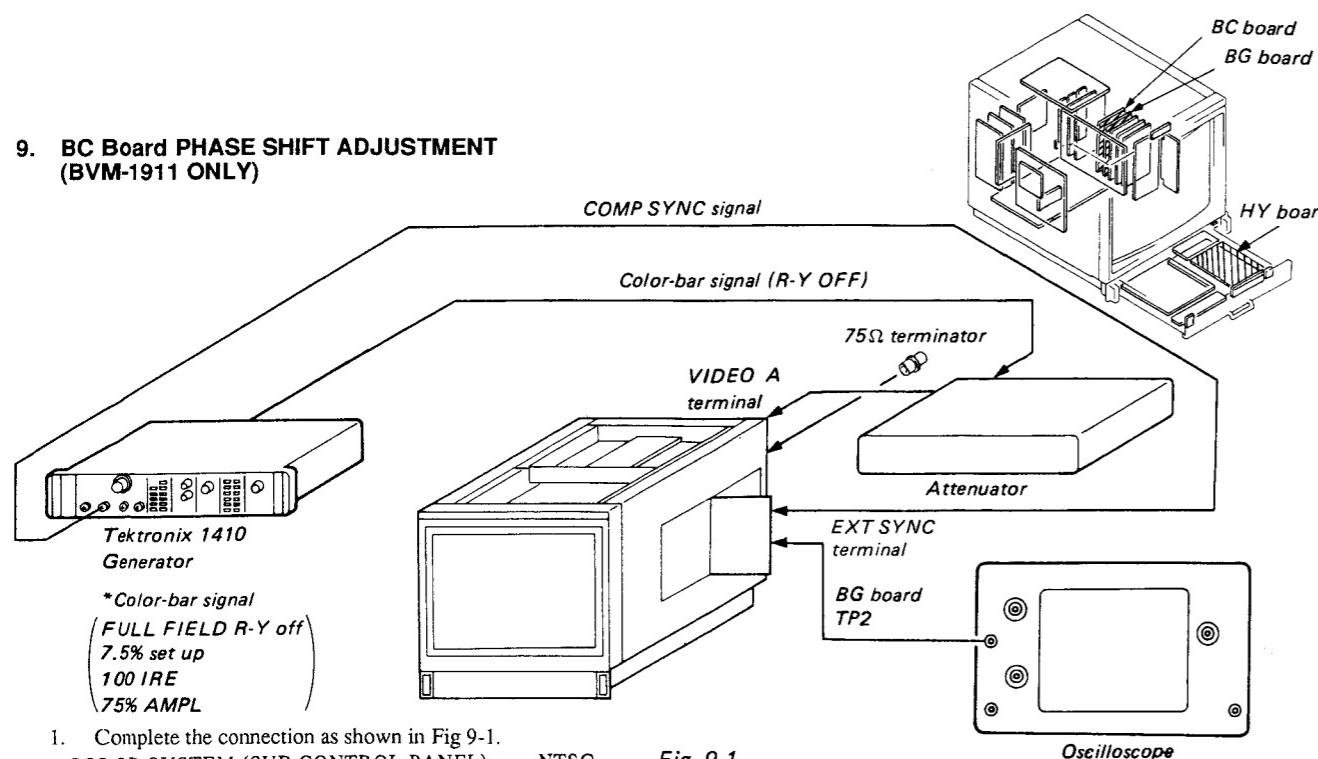


*A is equal to B when the amplitude is 5 div.*

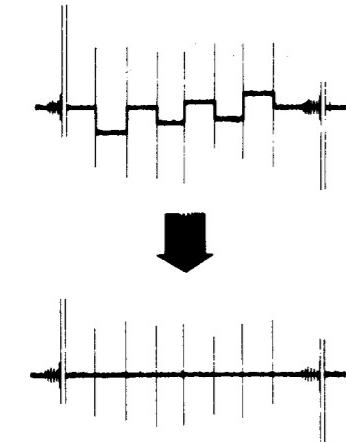
Fig. 8-2



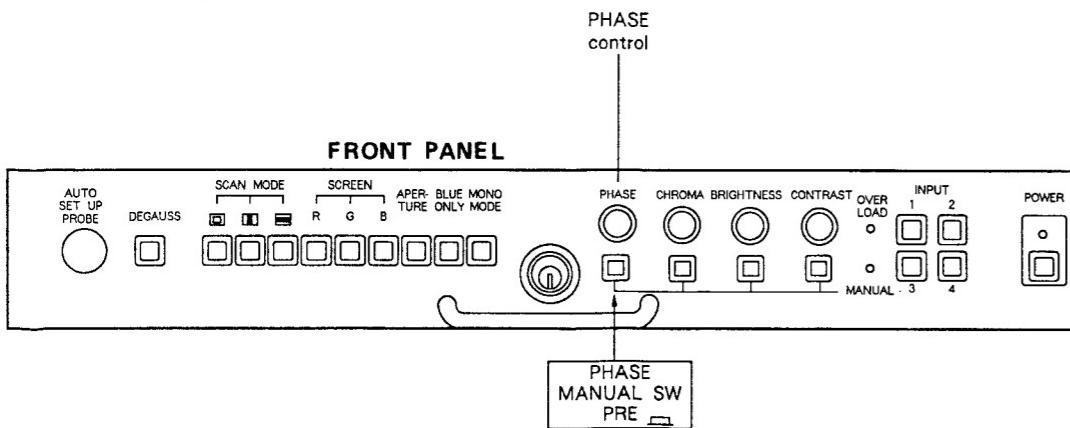
**9. BC Board PHASE SHIFT ADJUSTMENT  
(BVM-1911 ONLY)**



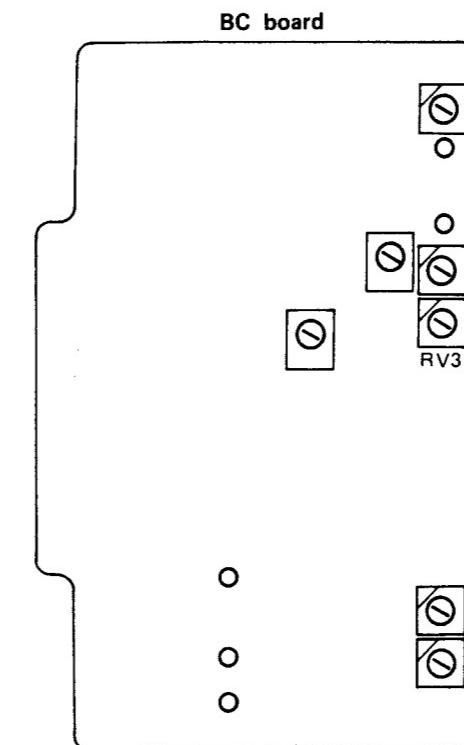
1. Complete the connection as shown in Fig 9-1.
2. Connect an oscilloscope to the TP2 on the BG board.
3. Make the waveform flat with the PHASE control of front panel as shown in Fig. 9-2.
4. Attenuate the signal by 10dB by using attenuator.
5. Adjust RV3 on the BC board so that the output waveform becomes flat as shown in Fig. 9-2.
6. Restore the attenuator to 0dB.
7. Repeat the steps 3 to 5.



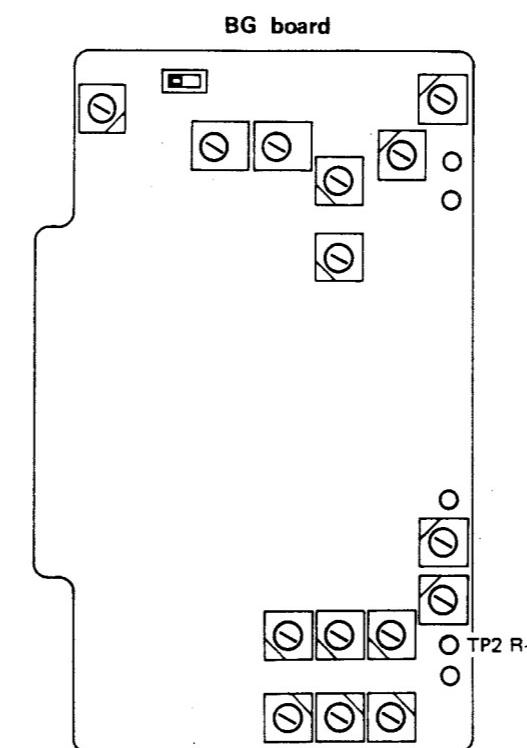
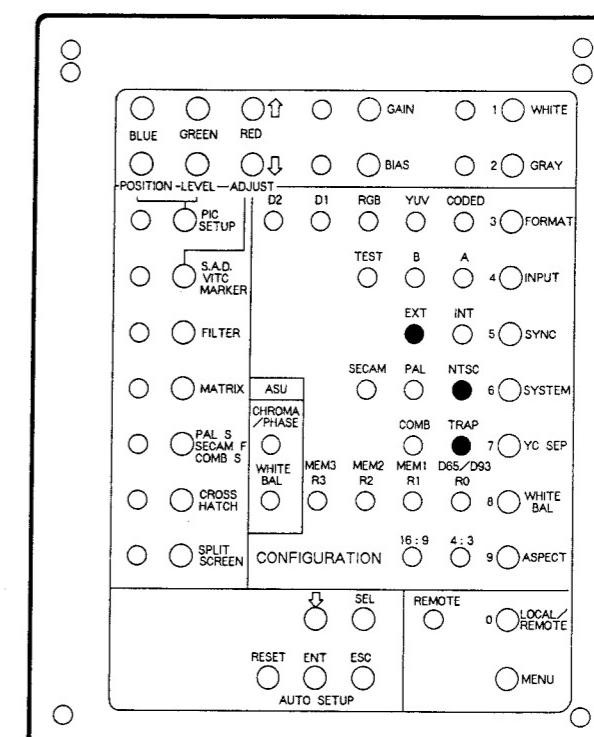
**Fig. 9-2**



**4-35**

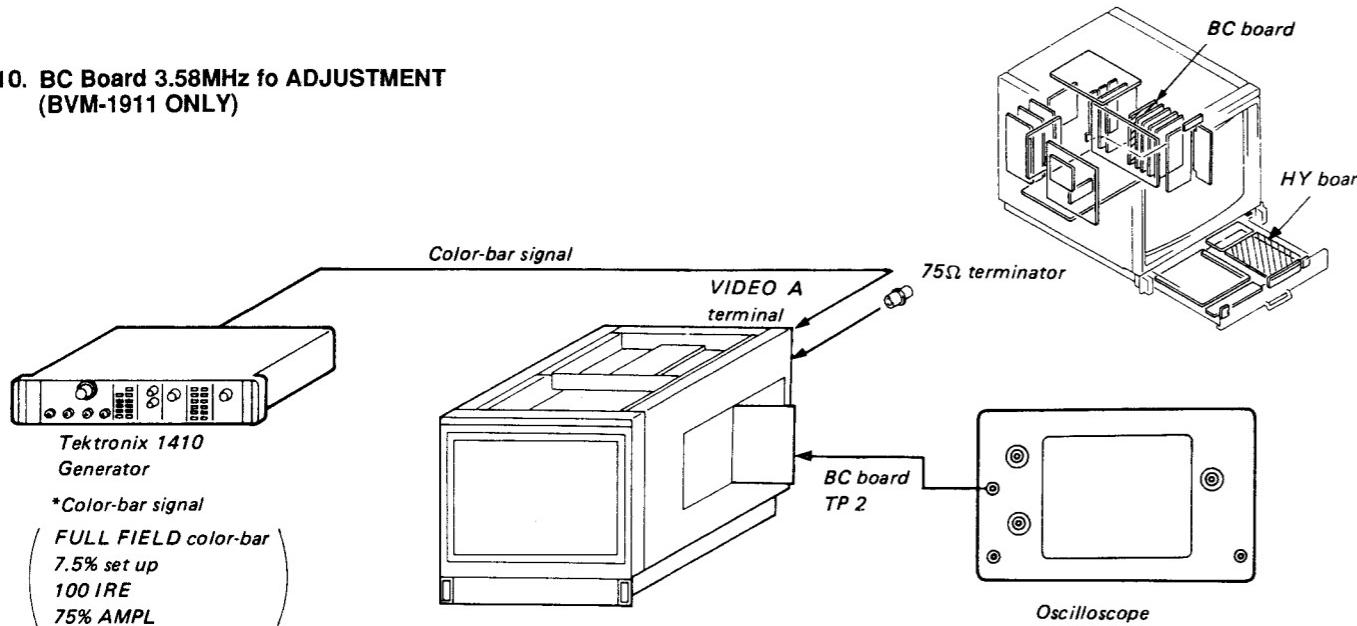


**SUB CONTROL PANEL (HY board)**

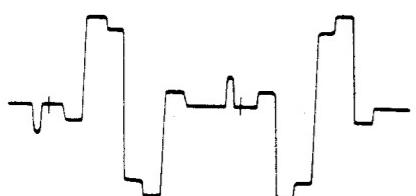
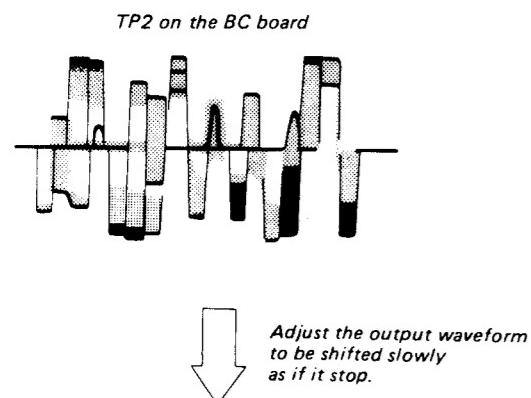


**4-36**

**10. BC Board 3.58MHz fo ADJUSTMENT  
(BVM-1911 ONLY)**

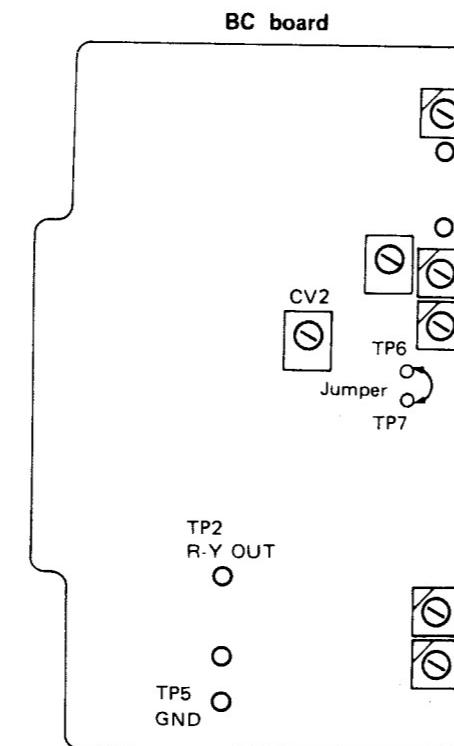
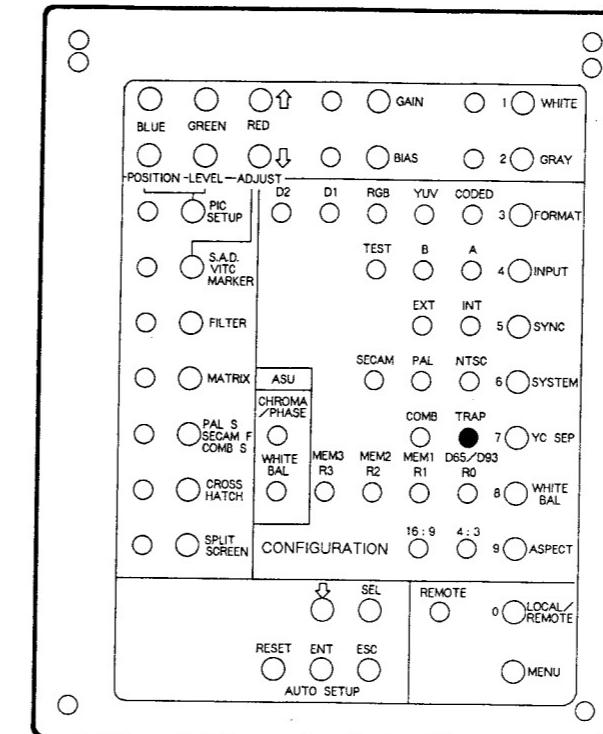


- YC SEP button (SUB CONTROL PANEL) ..... TRAP
- 1. Input color-bar signal to the VIDEO A terminal of the set.
- 2. Connect an oscilloscope to the TP2 of BC board.
- 3. Short-circuit between TP6 and TP7 of BC board with a jumper wire.
- 4. Adjust CV2 of BC board so that the output waveform is shifted slowly as shown in Fig. 10-1.
- 5. Turn off the power of this monitor, and disconnect TP6 and TP7 of BC board.

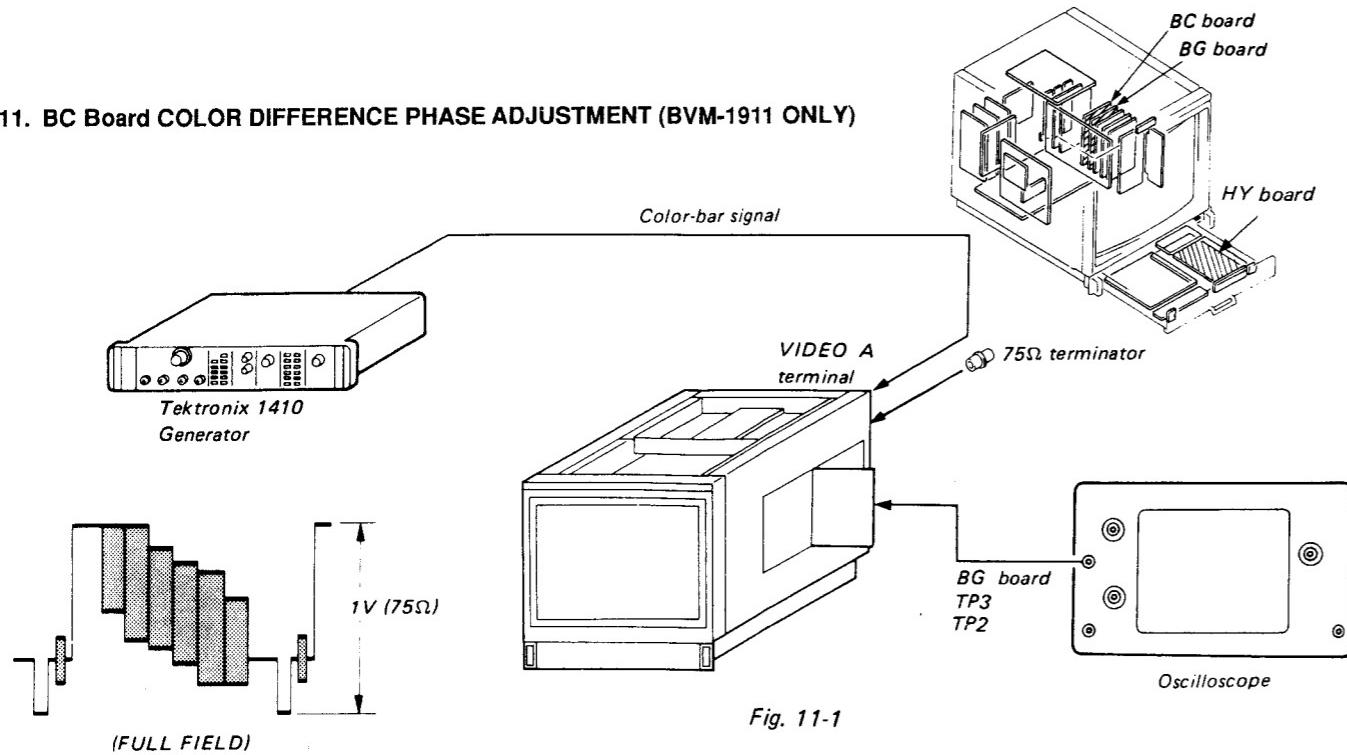


**Fig. 10-1**

**SUB CONTROL PANEL (HY board)**

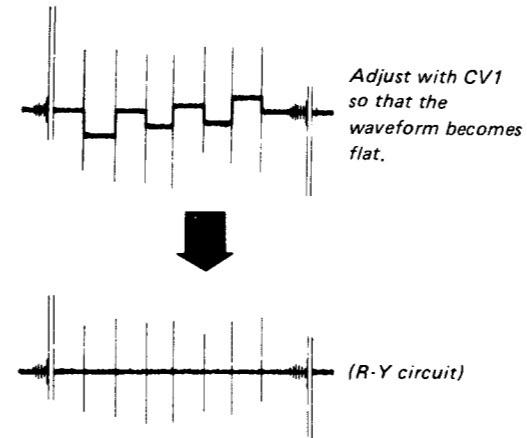


### 11. BC Board COLOR DIFFERENCE PHASE ADJUSTMENT (BVM-1911 ONLY)

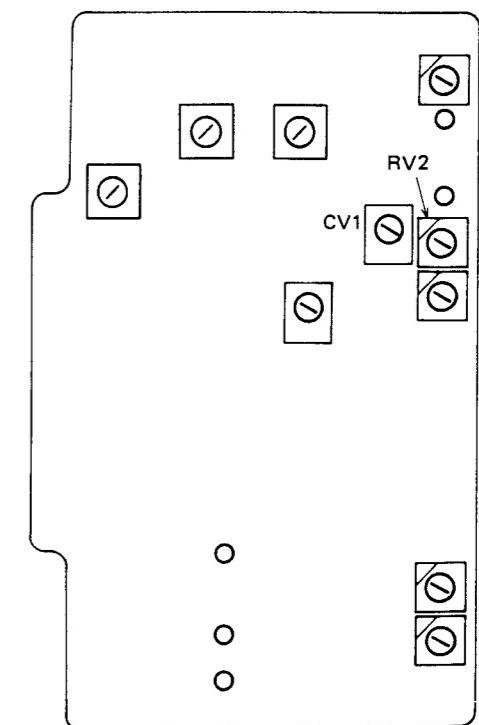


#### Quad Adjustment

5. Connect the oscilloscope probe to TP2 on the BG board. Turn on the B-Y signal of the signal generator, and turn off the (R-Y) signal. Then adjust CV1 on the BC board so that the output waveform is flat. (See Fig. 11-3)
6. Repeat the steps 3 to 6.



**BC Board**

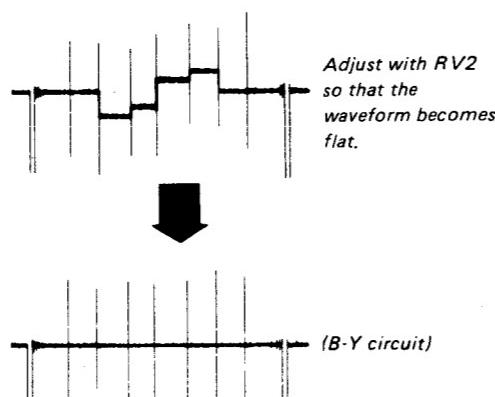


#### • YC SEP button (SUB CONTROL PANEL) ..... TRAP

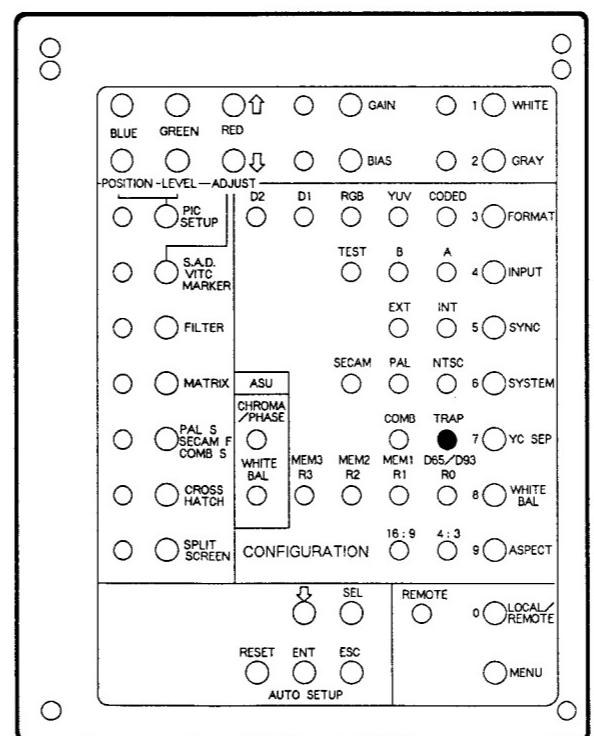
1. Complete the connections as shown in Fig. 11-1.
2. Turn on the power of this monitor.

#### B-Y System Adjustment

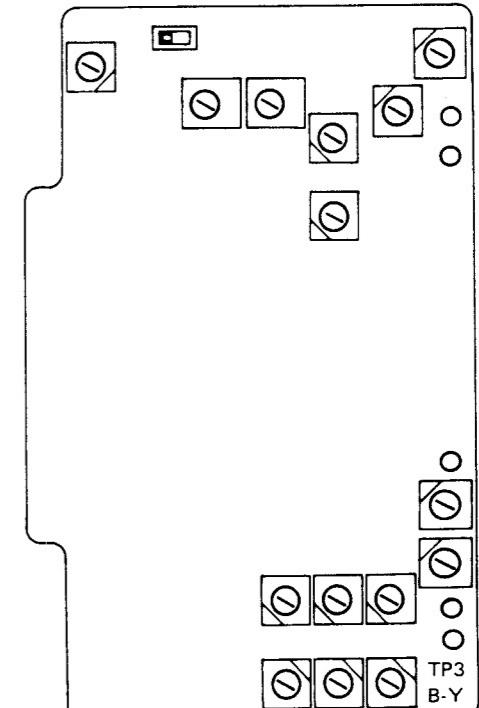
3. Connect the oscilloscope probe to TP3 on the BG board, and turn off the (B-Y) signal of the signal generator.
4. Set the oscilloscope sensitivity to 20mV/DIV, and adjust RV2 on the BC board so that the output waveform is flat. (See Fig. 11-2.)



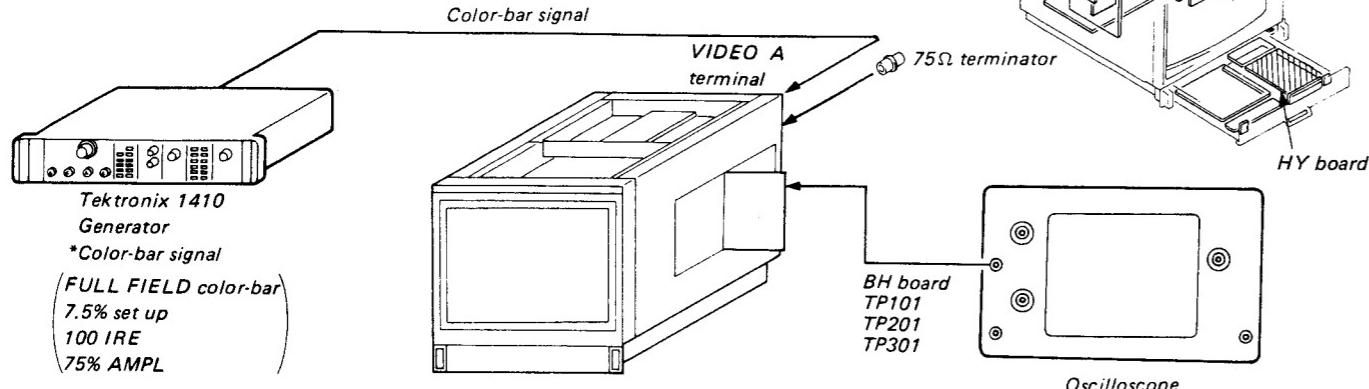
**SUB CONTROL PANEL (HY board)**



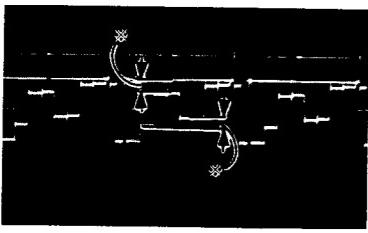
**BG Board**



**12. BC Board COLOR DIFFERENCE LEVEL ADJUSTMENT (BVM-1911 ONLY)**



- YC SEP button (SUB CONTROL PANEL) ..... TRAP
- 1. Input color-bar signal to the VIDEO A terminal of the set.
- 2. Connect an oscilloscope to the TP101 of BH board.
- 3. Adjust RV4 of BC board so that the levels with  $\downarrow\downarrow$  is flat as shown in Fig. 12-1.

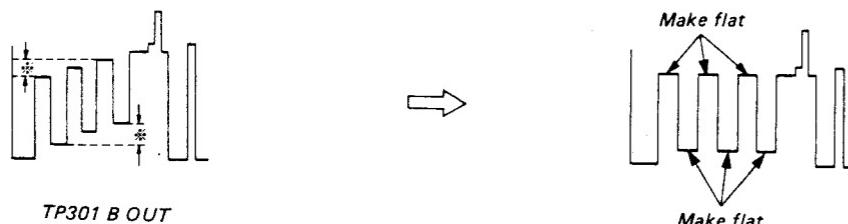


TP101 R OUT

\* Adjust the levels with  $\downarrow\downarrow$  to be flat respectively using RV4 of BC board.

Fig. 12-1

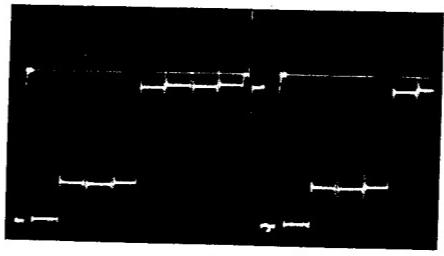
- 4. Connect an oscilloscope to the TP301 of BH board.
- 5. Adjust RV5 of BC board so that the output waveform as shown in Fig. 12-2.



TP301 B OUT

Fig. 12-2

6. Connect an oscilloscope to the TP201 of BH board.
7. Adjust RV4 and RV5 of BG board so that the INPUT waveform becomes flat as shown in Fig. 12-3.



TP201 G OUT

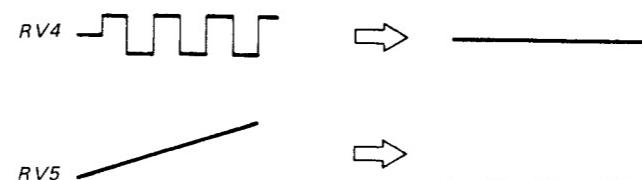
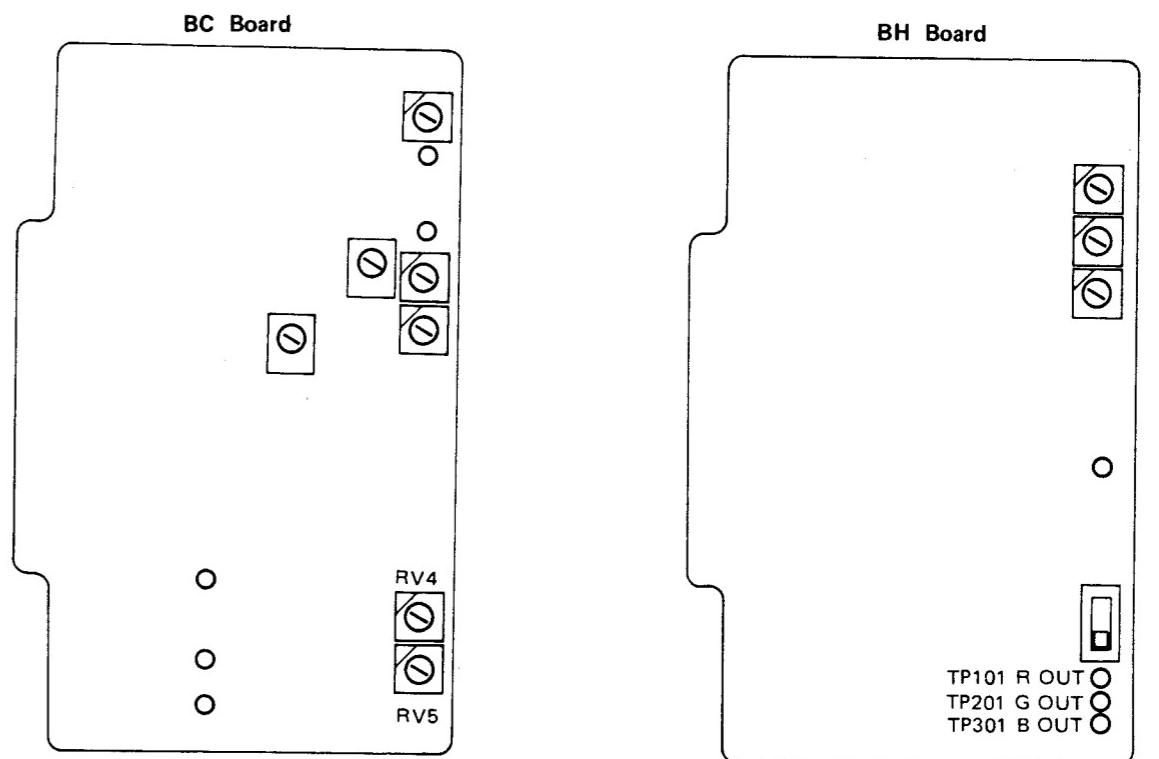
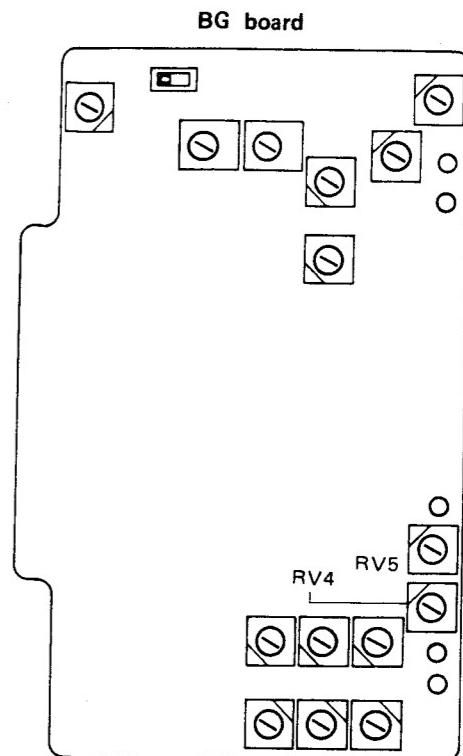
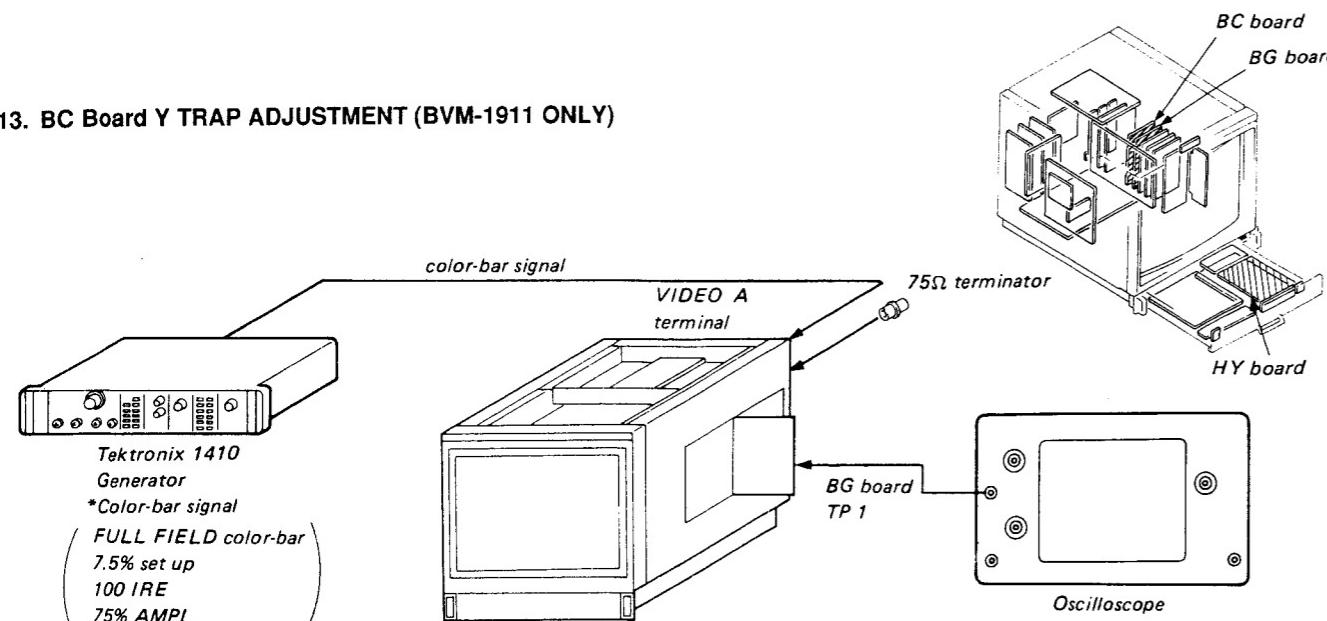


Fig. 12-3



### 13. BC Board Y TRAP ADJUSTMENT (BVM-1911 ONLY)



- COLOR SYSTEM button (SUB CONTROL PANEL)..... NTSC
- YC SEP button (SUB CONTROL PANEL) ..... TRAP
- 1. Input color-bar signal to VIDEO A terminal of the set.

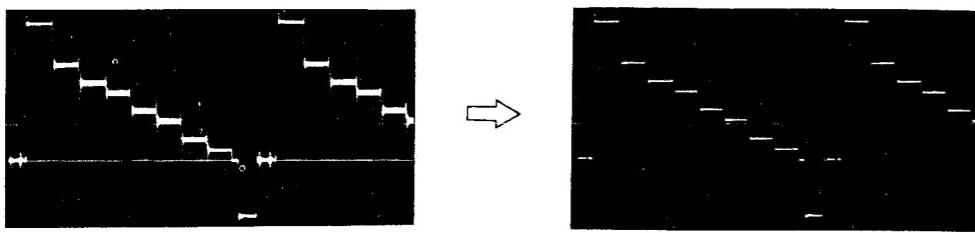
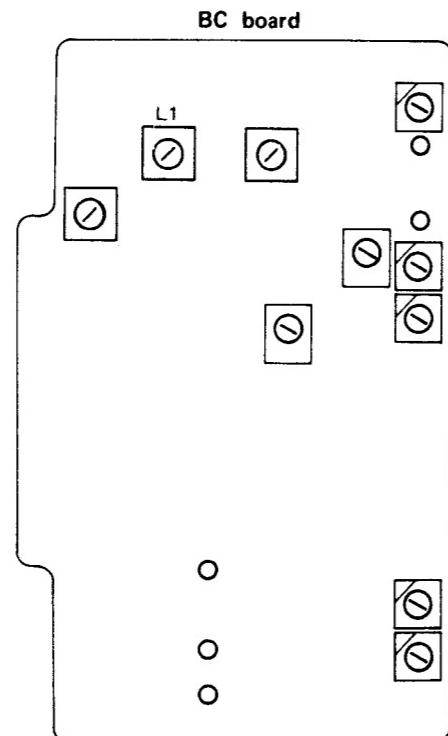
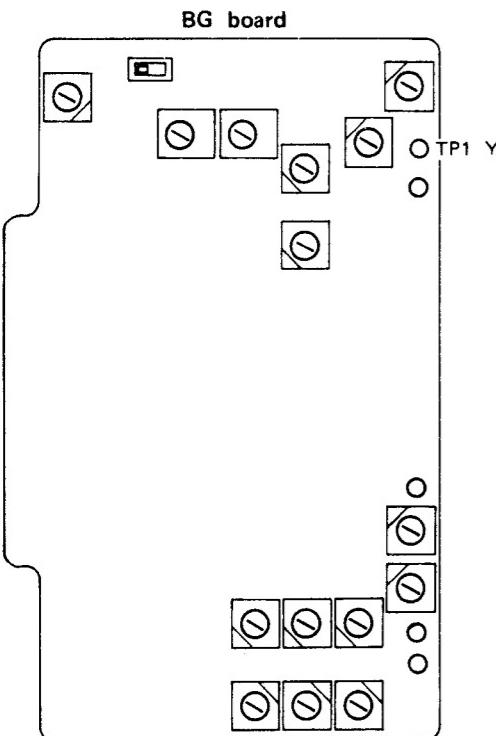
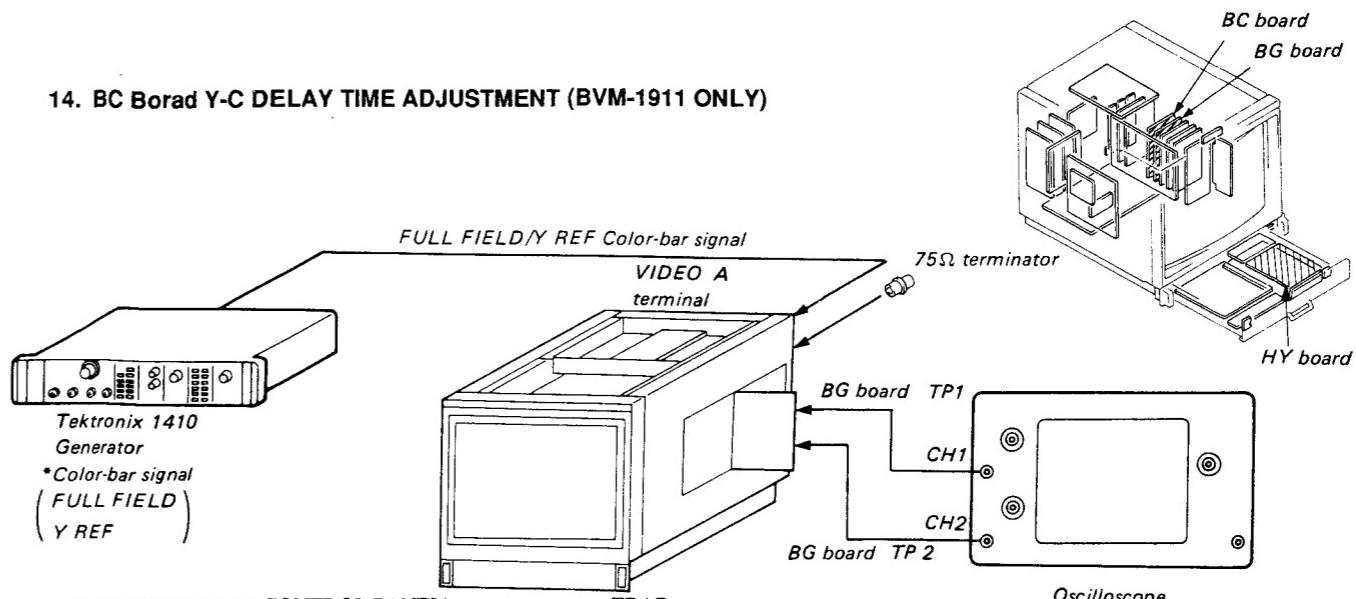


Fig. 13-1



### 14. BC Board Y-C DELAY TIME ADJUSTMENT (BVM-1911 ONLY)



- YC SEP button (SUB CONTROL PANEL) ..... TRAP
- 1. Input color-bar signal (FULL FIELD/Y REF) to the VIDEO A terminal of the set.
- 2. Connect an oscilloscope (CH-1 probe) to the TP1 of BG board and connect an oscilloscope (CH-2 probe) to the TP2 of BG board (VERT mode of the oscilloscope is CHOP).
- 3. Adjust RV1 of BC board so that the output waveform as shown in Fig. 14-1.

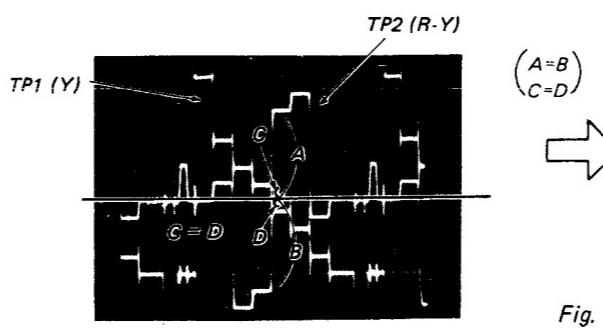
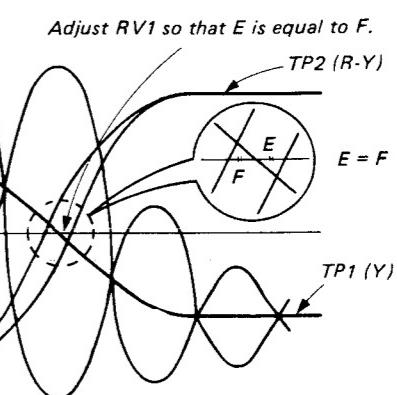
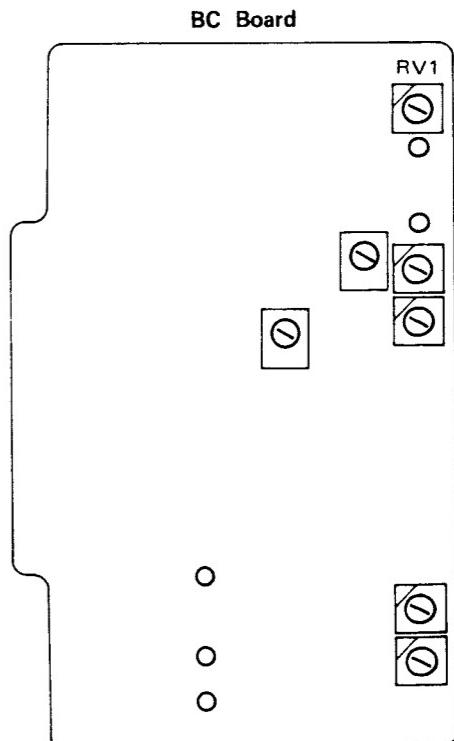
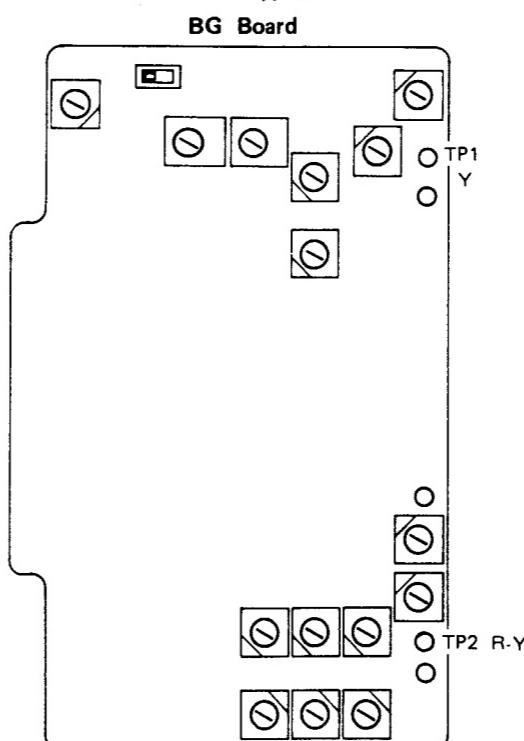
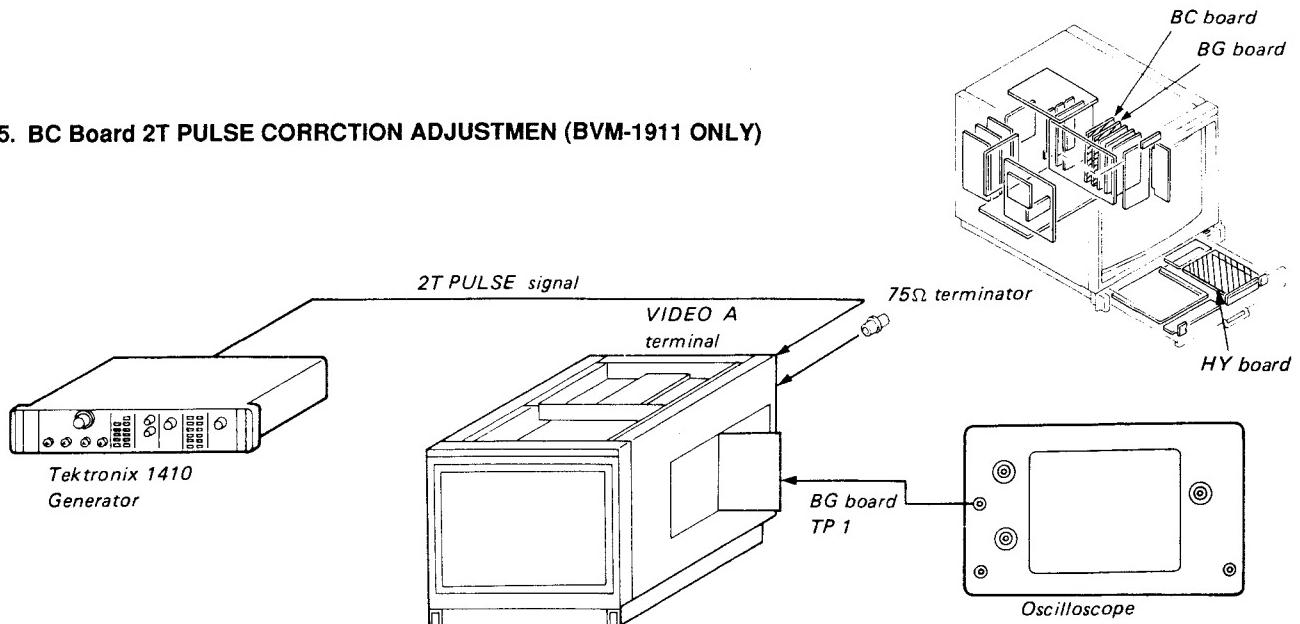


Fig. 14-1



## 15. BC Board 2T PULSE CORRECTION ADJUSTMENT (BVM-1911 ONLY)



### • YC SEP button (SUB CONTROL PANEL) ..... TRAP

1. Input 2T pulse signal to VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP1 of BG board.
3. Adjust L2 of BC board so that A is equal to B as shown in Fig. 15-1.
4. Change the input signal from 2T pulse to T pulse, and make sure the waveform balance is not lost extremely as shown in Fig. 15-1.

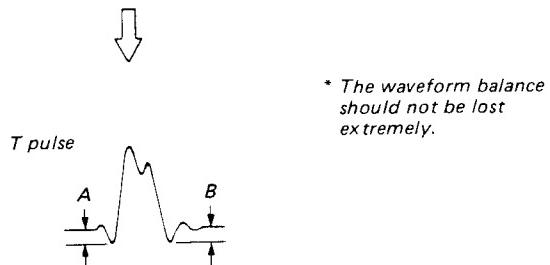
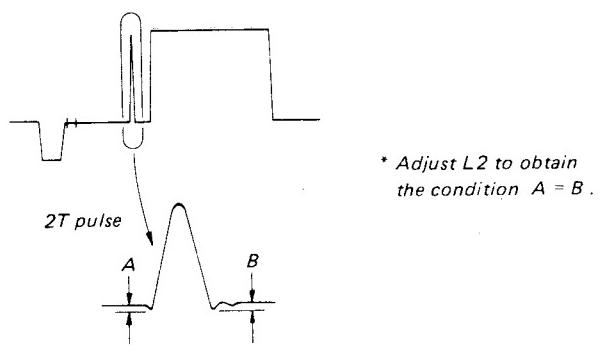
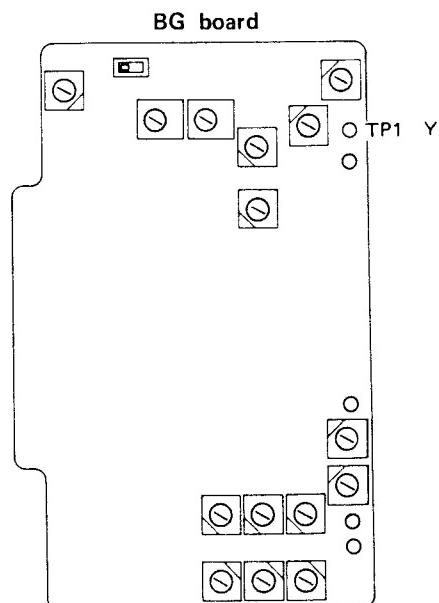
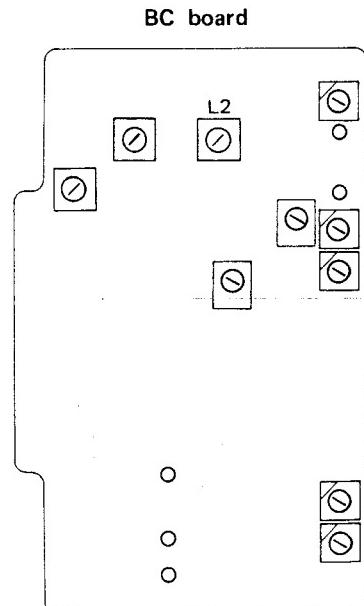
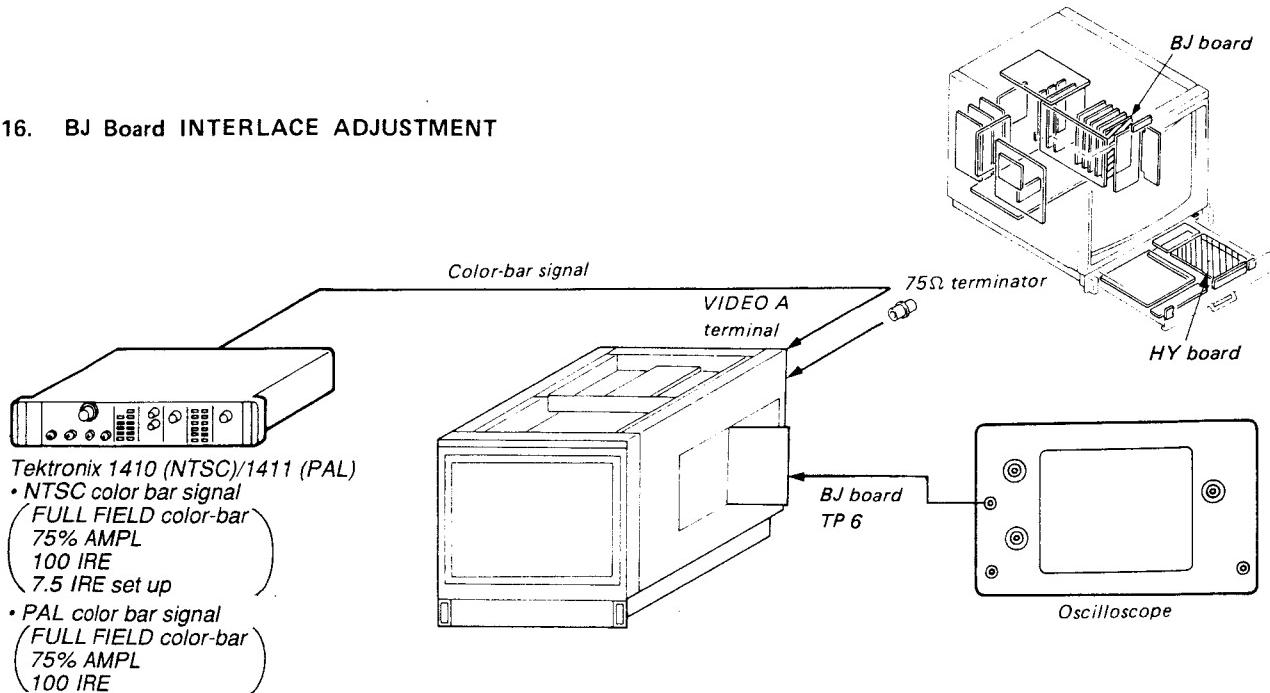


Fig. 15-1



## 16. BJ Board INTERLACE ADJUSTMENT



- YC SEP button (SUB CONTROL PANEL) ..... TRAP
1. Input color-bar signal to the VIDEO A terminal of the set.
  2. Connect an oscilloscope to the TP6 on the BJ board.
  3. Adjust RV6 to obtain the waveform on the oscilloscope as shown in Fig. 16-1.

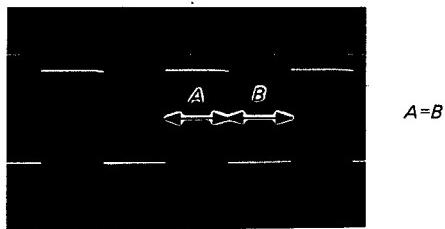
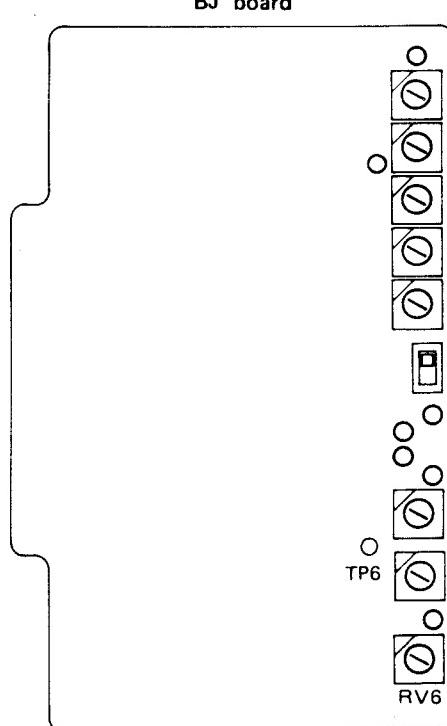
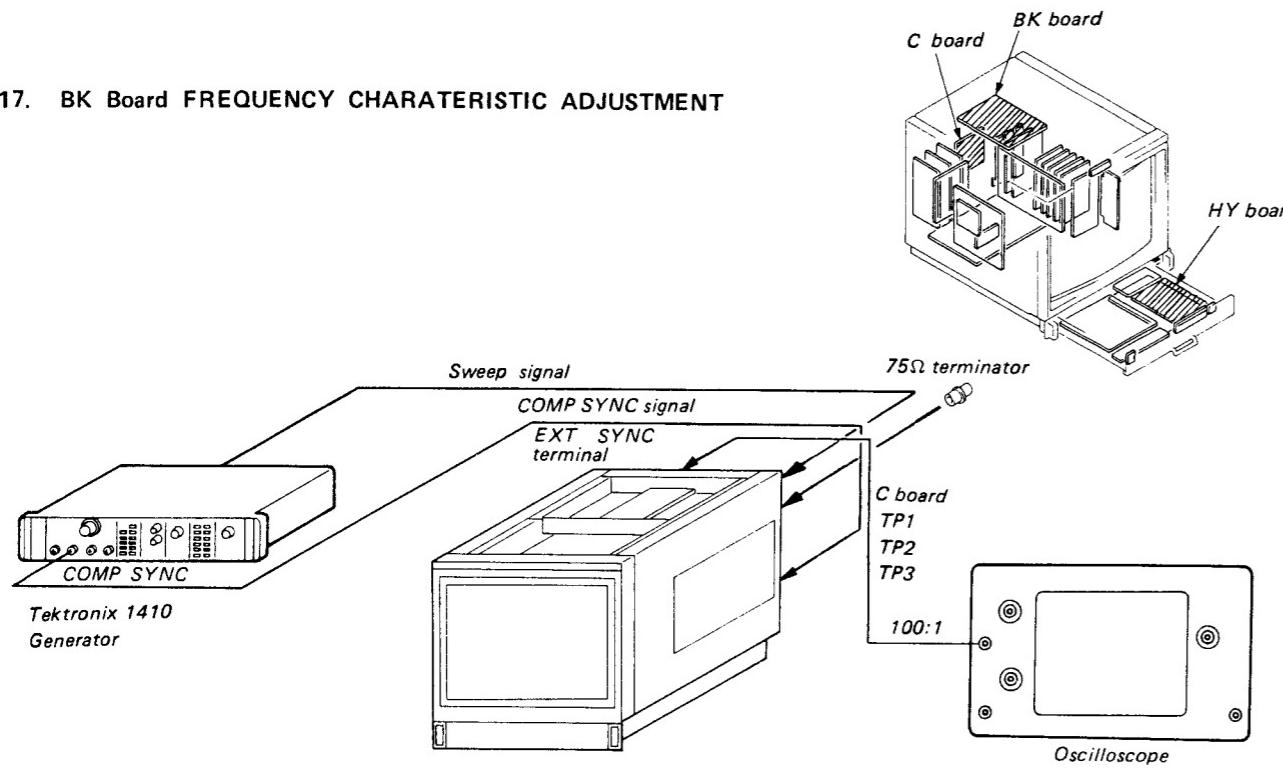


Fig. 16-1



## 17. BK Board FREQUENCY CHARACTERISTIC ADJUSTMENT



1. Input SWEEP signal to VIDEO A terminal of the set, and input COMP SYNC signal to EXT SYNC terminal of the set.
  - YC SEP button (SUB CONTROL PANEL) ... TRAP (BVM-1911) (BVM-2011P)
  - SYNC button (SUB CONTROL PANEL) ..... EXT
  - MODE selector (FRONT PANEL) ..... MONO (—)
  - FILTER button (SUB CONTROL PANEL) ... OFF
2. Connect an oscilloscope to the TP1 on the C board.  
\*Probe: 100:1
3. Adjust CV101 and CV102 on the BK board so that output waveform becomes flat in a range of 0 to 10MHz as shown in Fig. 17-1.
4. Connect an oscilloscope to the TP2 on the C board.
5. Adjust CV201 and CV202 on the BK board so that output waveform becomes flat in a range of 0 to 10MHz as shown in Fig. 17-1.
6. Connect an oscilloscope to the TP3 on the C board.
7. Adjust CV301 and CV302 on the BK board so that output waveform becomes flat in a range of 0 to 10MHz as shown in Fig. 17-1.

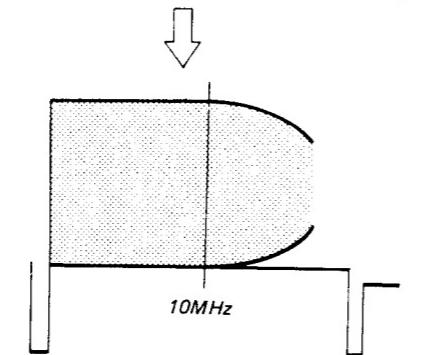
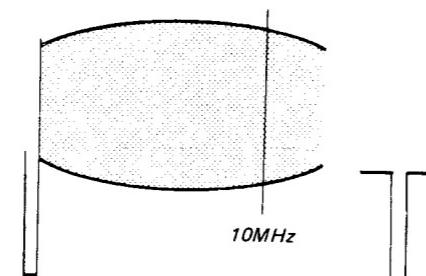
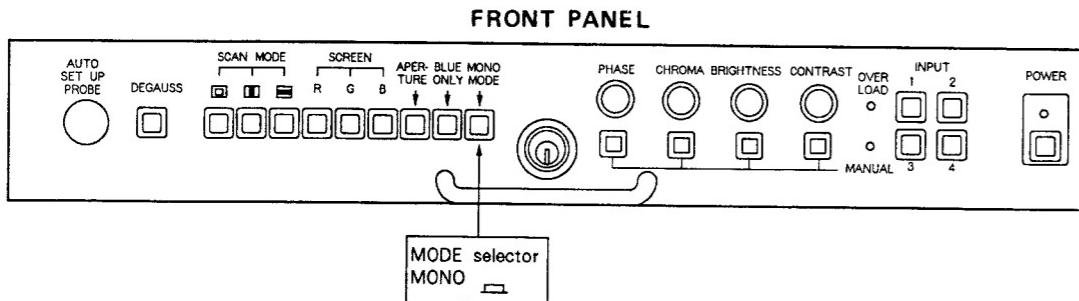
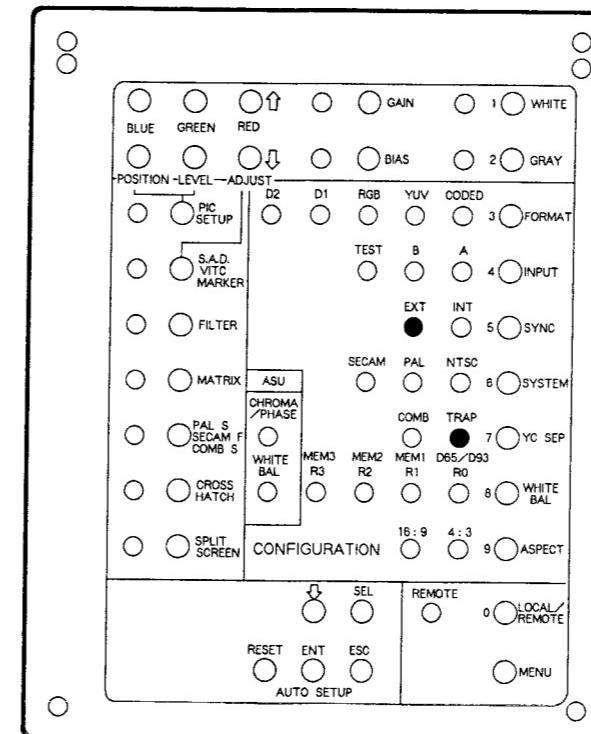


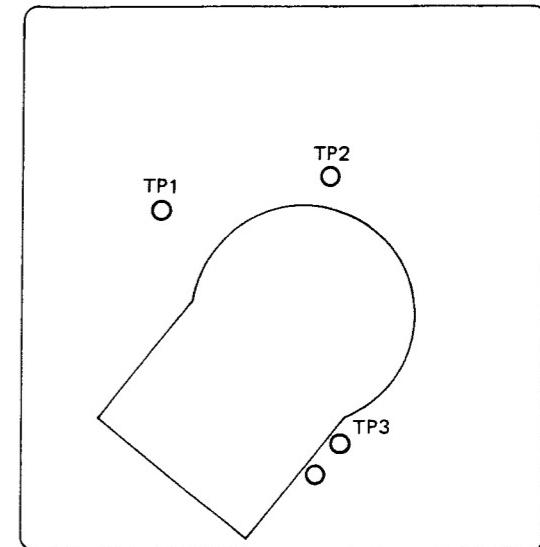
Fig. 17-1



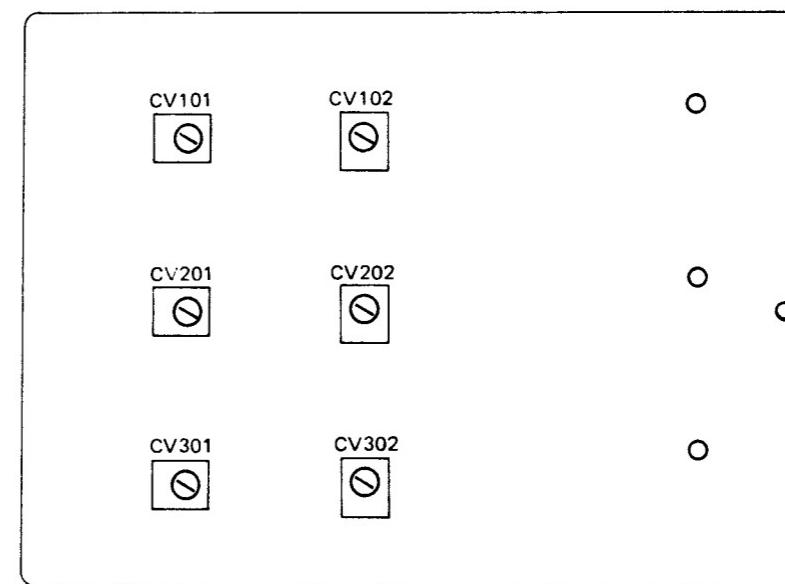
SUB CONTROL PANEL (HY board)



C board

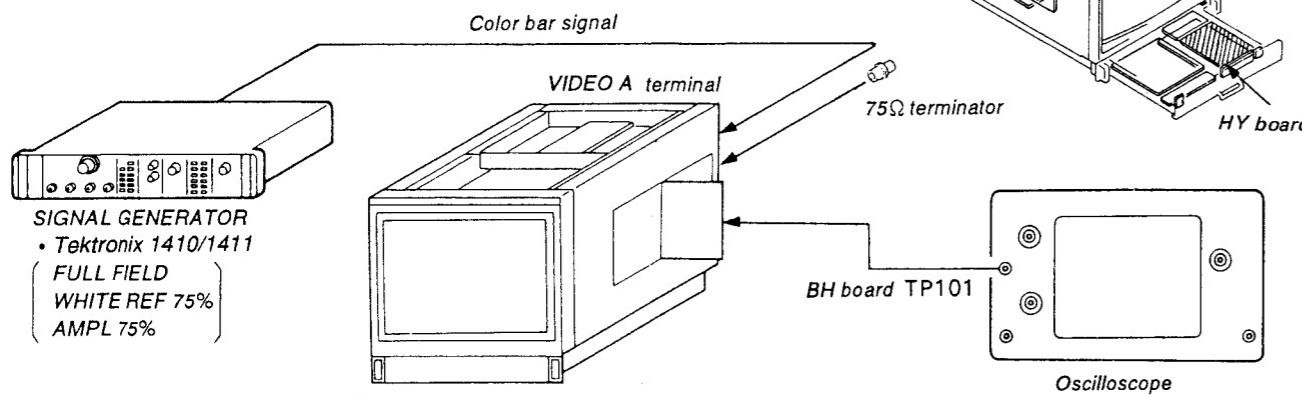


BK board



## 18. BT Board COMB FILTER ADJUSTMENT (BVM-1911 ONLY)

### 18-1. BT Board Partial Adjustment



#### Luminance Level Adjustment

1. Feed a color bar signal to VIDEO A INPUT terminal of this set.
2. Set the YC SEP button on the sub control panel to TRAP position.
3. Connect the oscilloscope to TP101 (R OUT) on the BH board. (DC 0.1 V/div:H)
4. Turn the POSITION control of the oscilloscope to set the portion A (white) of Fig. 18-1 to the center of the oscilloscope.
5. Set the YC SEP button to the COMB position.
6. Set the PAL S/SECAM F/COMB S button on the sub control panel to the ON.
7. Set the portion A (white) of Fig. 18-1 to the center of the oscilloscope using RV3 (luminance level) on the BT board.

#### Chroma Level Adjustment

1. Feed a color bar signal to VIDEO A INPUT terminal of this set.
2. Set the YC SEP button on the sub control panel to the TRAP position.
3. Connect the oscilloscope to TP101 on the BH board. (DC 0.1 V/div:H)
4. Turn the POSITION control of the oscilloscope to set the portion A (white) of Fig. 18-1 to the center of the oscilloscope.
5. Set the YC SEP button to the COMB position.
6. Set the PAL S/SECAM F/COMB S button on the sub control panel to the ON.
7. Set the portion B (red) of Fig. 18-1 to the center of the oscilloscope using RV8 (chroma level) on the BT board.

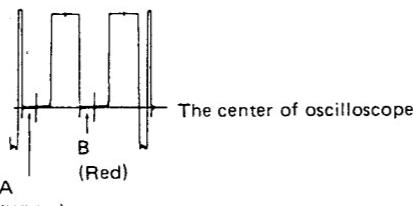
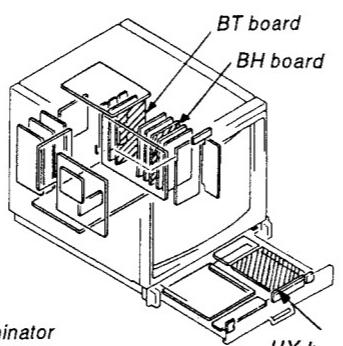
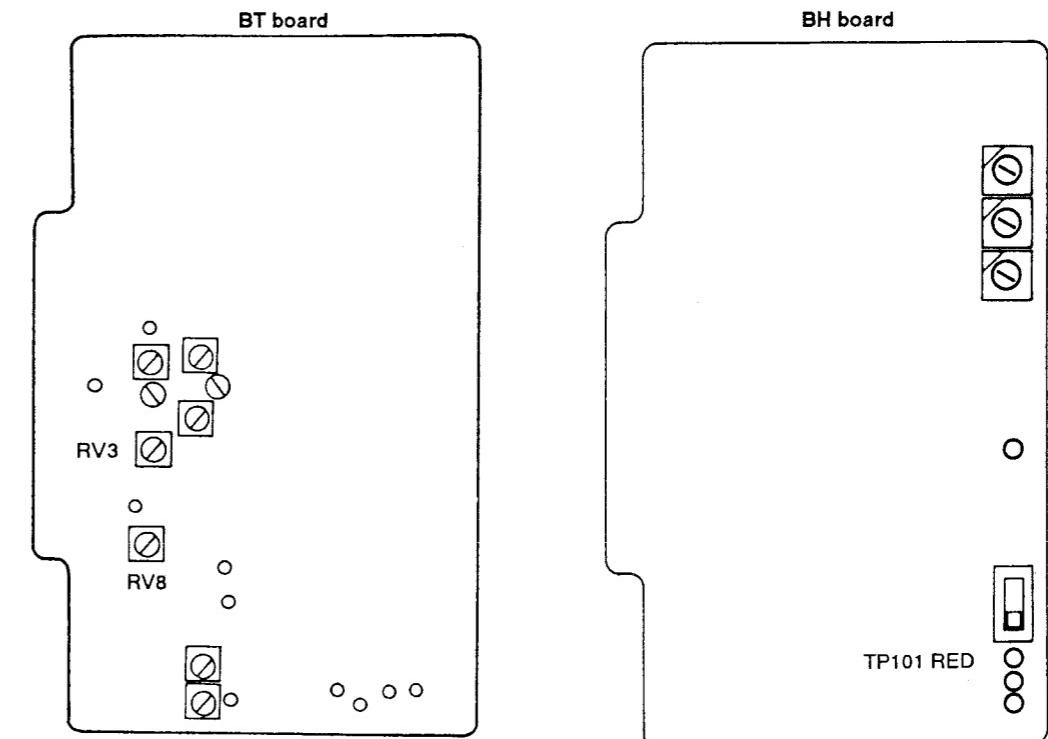
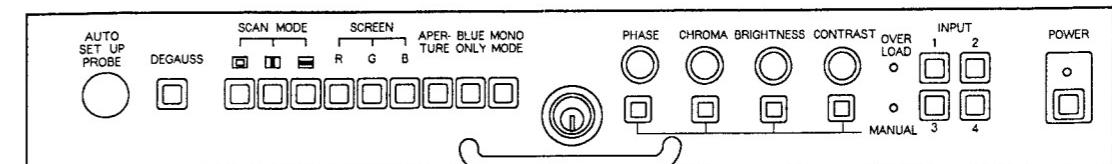


Fig. 18-1

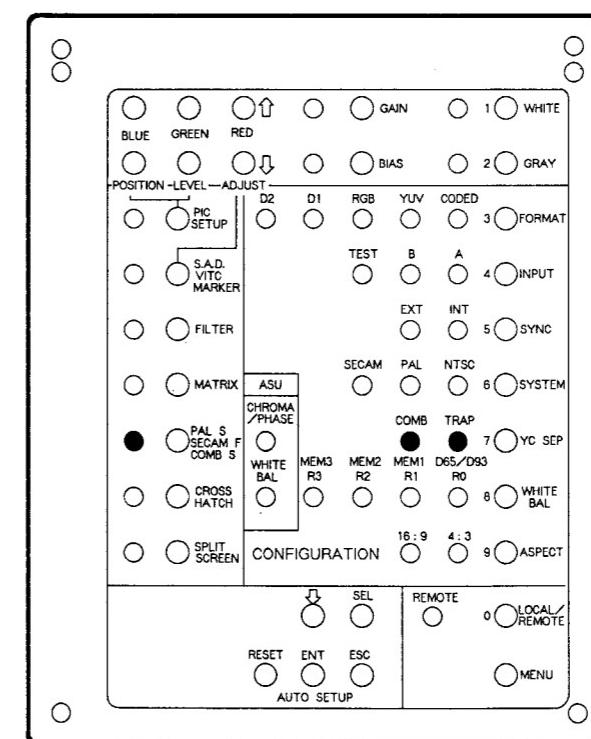
**Note:** Never attempt to turn the following parts as these cannot be easily adjusted.  
FL1, FL2, FL3, DL3, DL5, DL6, DL8



FRONT PANEL

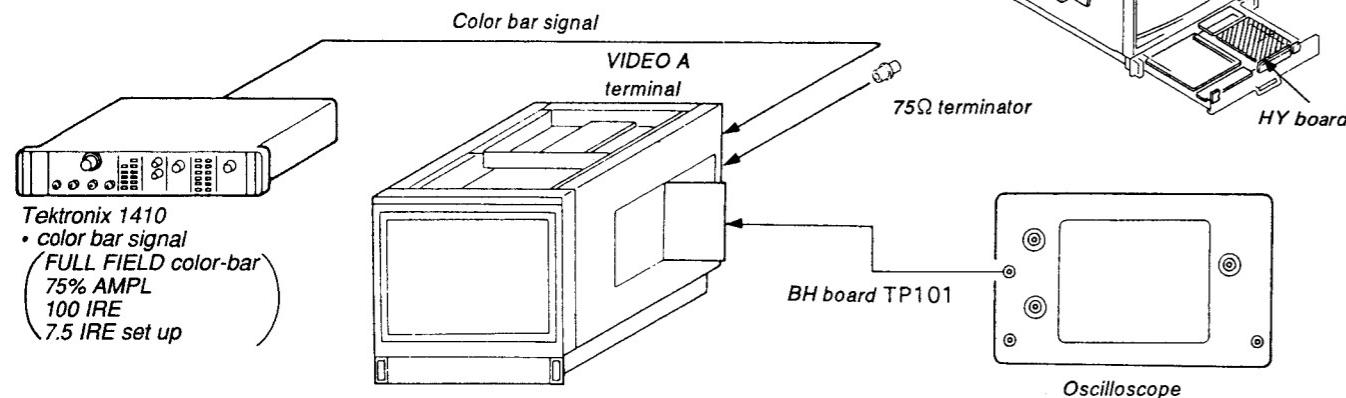


SUB CONTROL PANEL (HY board)



## 18-2. BT Board Total Adjustment

### 18-2-1. BT Board Luminance Level Adjustment



1. Feed a color bar signal to VIDEO A INPUT terminal of this set.
2. Set the YC SEP switch on the sub control panel to the TRAP position.
3. Connect the oscilloscope to TP101 (R OUT) on the BH board. (DC 0.1 V/div:H)
4. Turn the POSITION control of the oscilloscope until the portion A (white) of Fig. 18-2 is set to the center of the oscilloscope.
5. Set the YC SEP button to the COMB position.
6. Set the PAL S/SECAM F/COMB S button on the sub control panel to the ON.
7. Set the portion A (white) of Fig. 18-2 to the center of the oscilloscope using RV3 (luminance level) on the BT board.
8. Set the PAL S/SECAM F/COMB S button to the OFF.
9. Set the portion A (white) of Fig. 18-2 to the center of the oscilloscope using RV9 (1H luminance level) on the BT board.

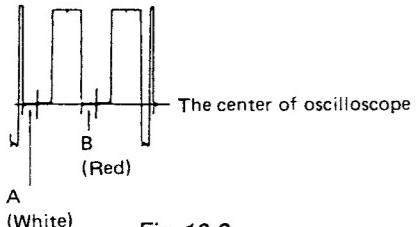
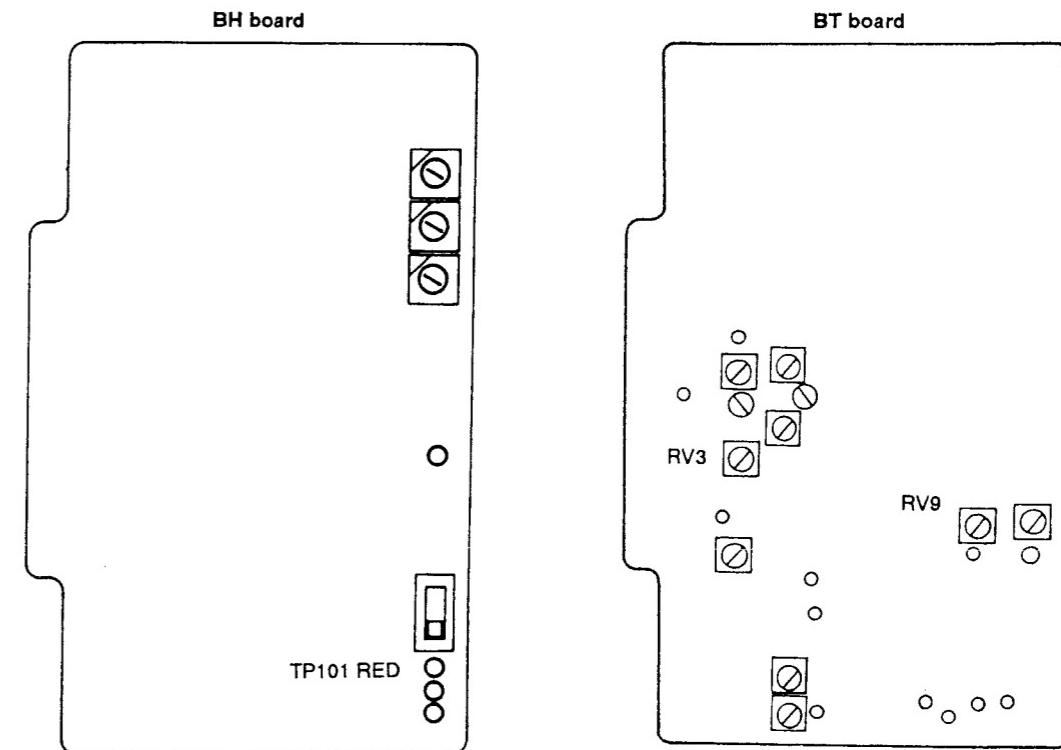
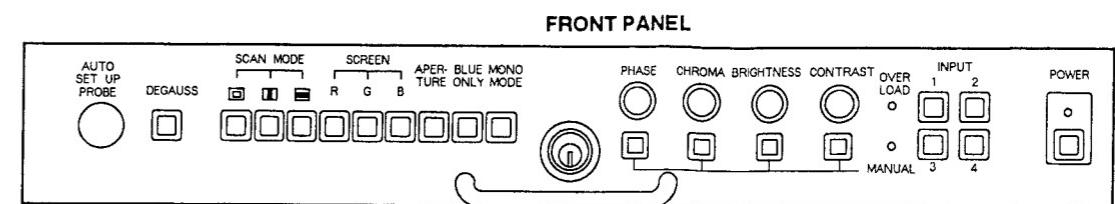
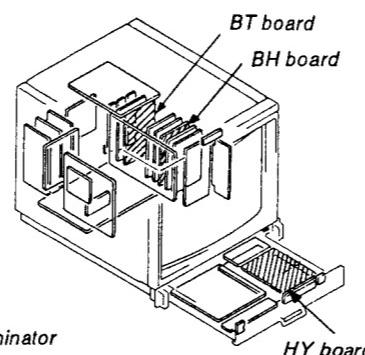
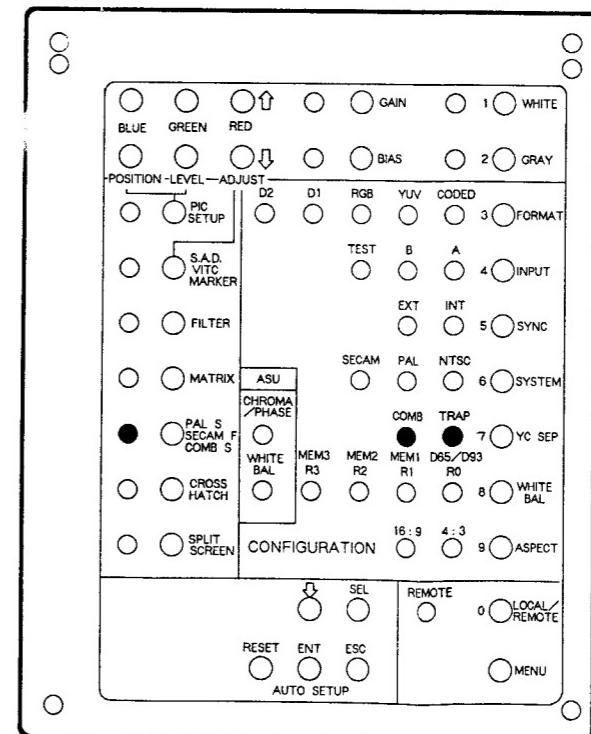


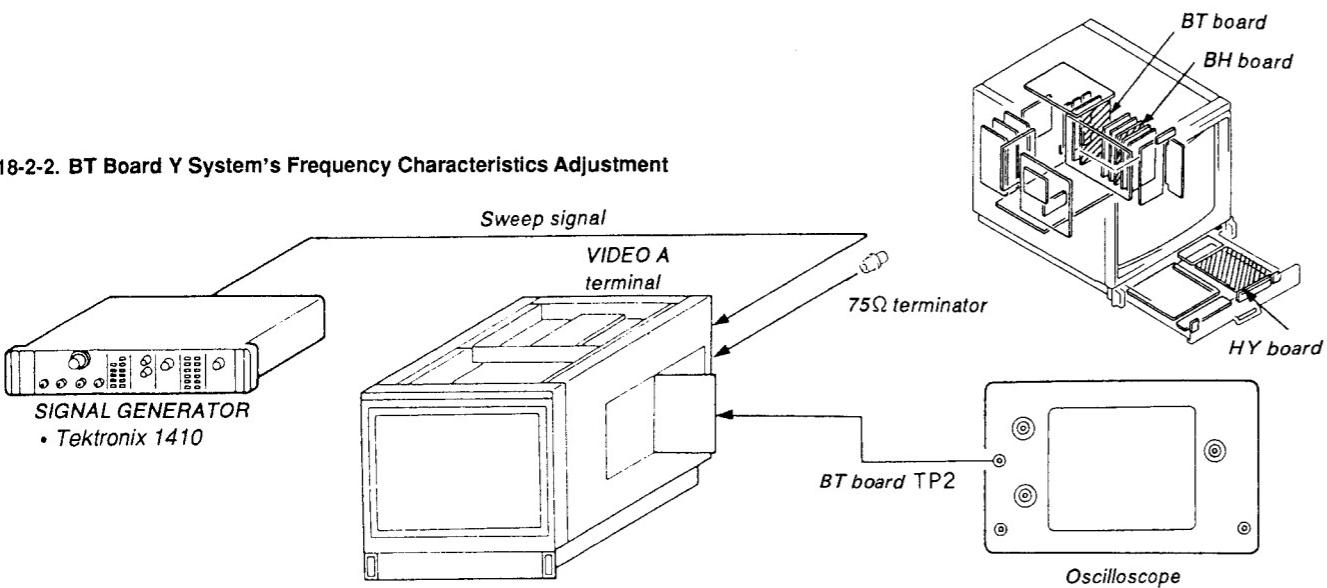
Fig. 18-2



SUB CONTROL PANEL (HY board)



18-2-2. BT Board Y System's Frequency Characteristics Adjustment



1. Feed a sweep signal to the VIDEO A INPUT terminal of this set.
2. Set the YC SEP switch on the sub control panel to the COMB position.
3. Connect the oscilloscope to TP2 on the BT board.  
(AC 0.1 V/div:V)
4. Set CV5 to the position as shown in Fig. 18-3.
5. Set the PAL S/SECAM F/COMB S button on the sub control panel to the ON.
6. Adjust the frequency characteristics until it is made flat using CV1 (Y FREQ) on the BT board. If it cannot be properly adjusted by using CV1, use CV5 (Y FREQ).
7. Set the PAL S/SECAM F/COMB S button to the OFF.
8. Adjust the frequency characteristics until it is made flat using CV2 (1H Y FREQ) on the BT board.
9. Set CV3 (CLK PHASE) and CV4 (CLK PHASE) on the BT board to the position as shown in Fig. 18-4.
10. Adjust the clock phase until it becomes just as shown in Fig. 18-5 using CV3.
11. If it cannot be adjusted with CV3, adjust with CV4 by returning CV3 to the position of Fig. 18-4.



Fig. 18-3

Fig. 18-4

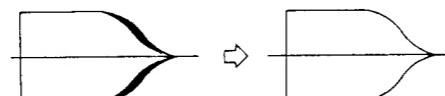
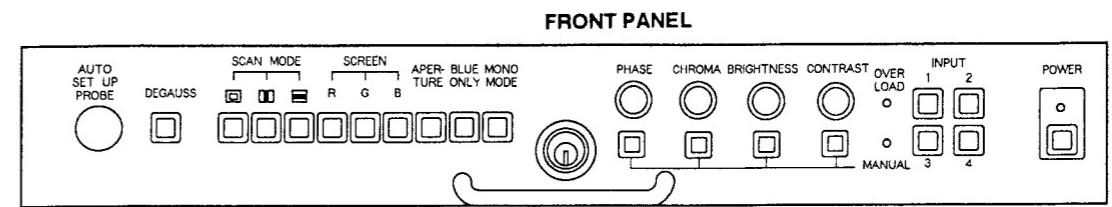
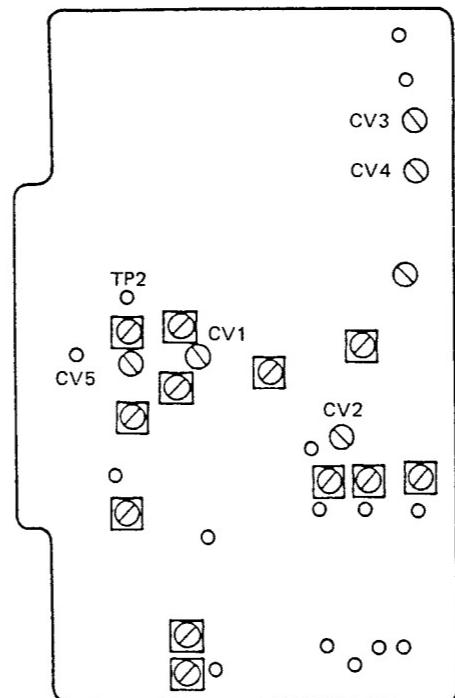


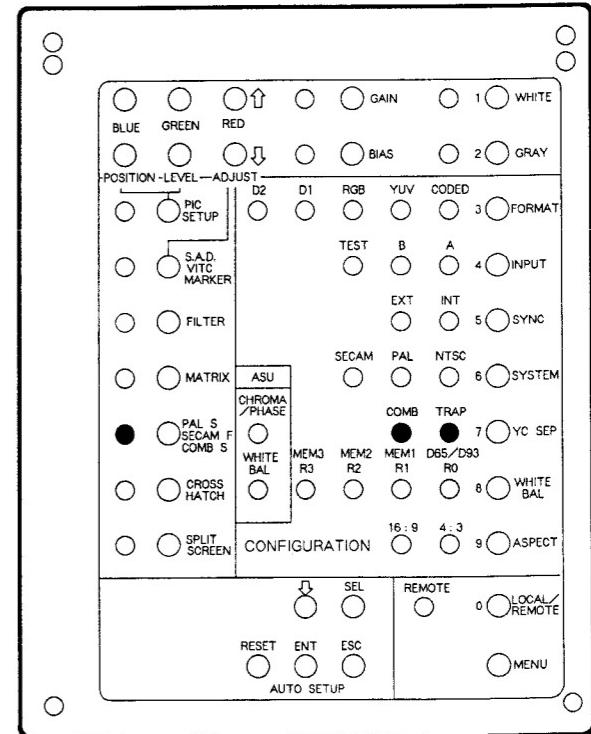
Fig. 18-5



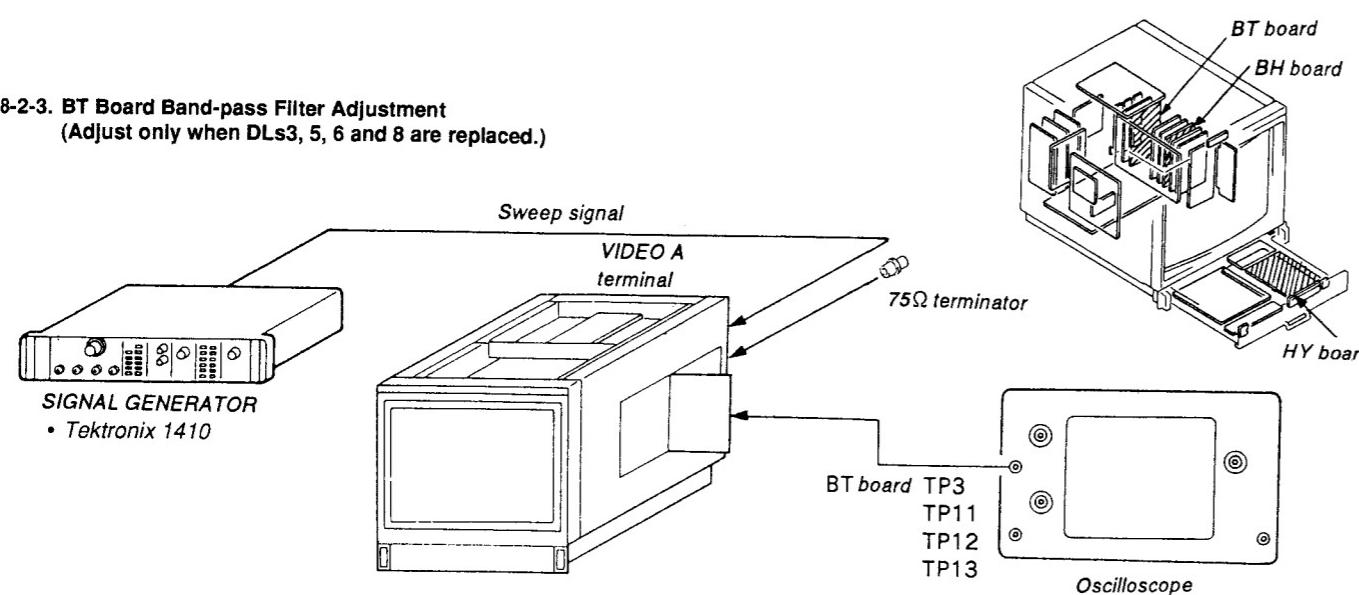
BT board



SUB CONTROL PANEL (HY board)



**18-2-3. BT Board Band-pass Filter Adjustment**  
(Adjust only when DLs3, 5, 6 and 8 are replaced.)



1. Feed a sweep signal to the VIDEO A INPUT terminal of this set.
2. Set the PAL S/SECAM F/COMB S button on the front panel to the ON.
3. Connect the oscilloscope to TP11.
4. Adjust the frequency characteristics using DL3 on the BT board so that the waveform becomes symmetrical as shown in Fig. 18-5 with 3.58 MHz as center frequency.
5. Connect the oscilloscope to TP12.
6. Adjust the frequency characteristics using DL6 on the BT board so that the waveform becomes symmetrical as shown in Fig. 18-5 with 3.58 MHz as center frequency.
7. Connect the oscilloscope to TP13.
8. Adjust the frequency characteristics using DL8 on the BT board so that the waveforms becomes symmetrical as shown in Fig. 18-5 with 3.58 MHz as center frequency.
9. Connect the oscilloscope to TP3.
10. Adjust the frequency characteristics using DL5 on the BT board so that the waveforms becomes symmetrical as shown in Fig. 18-5 with 3.58 MHz as center frequency.

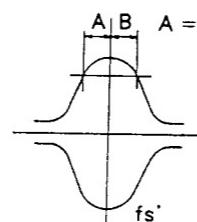
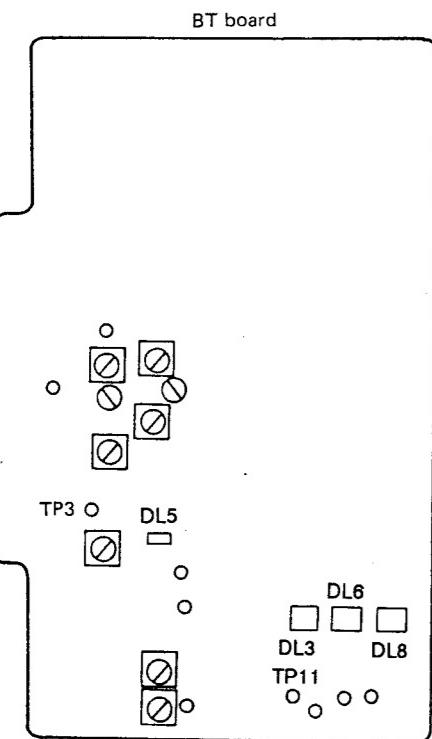
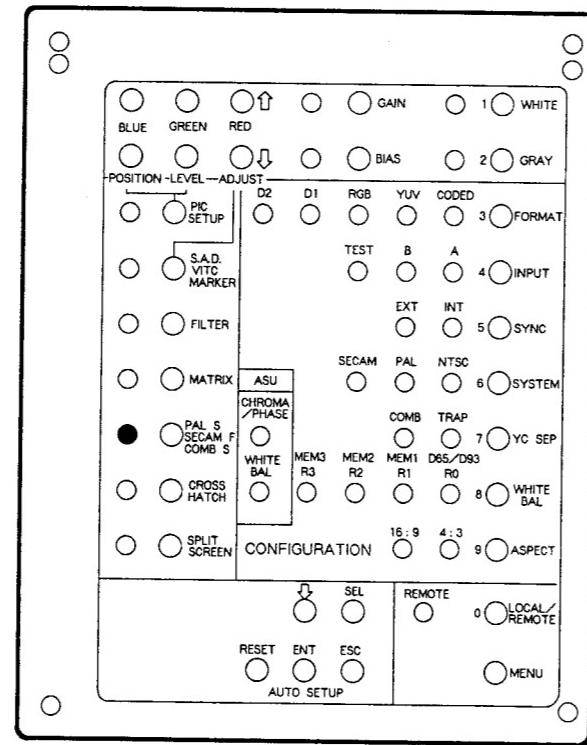
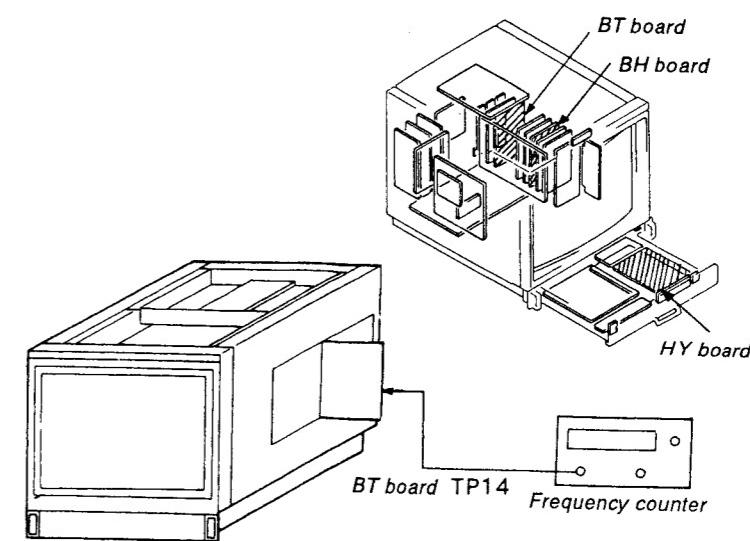


Fig. 18-6

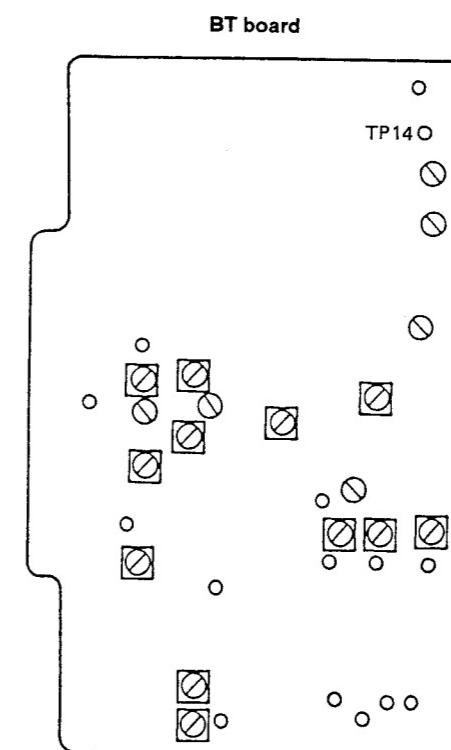
SUB CONTROL PANEL (HY board)



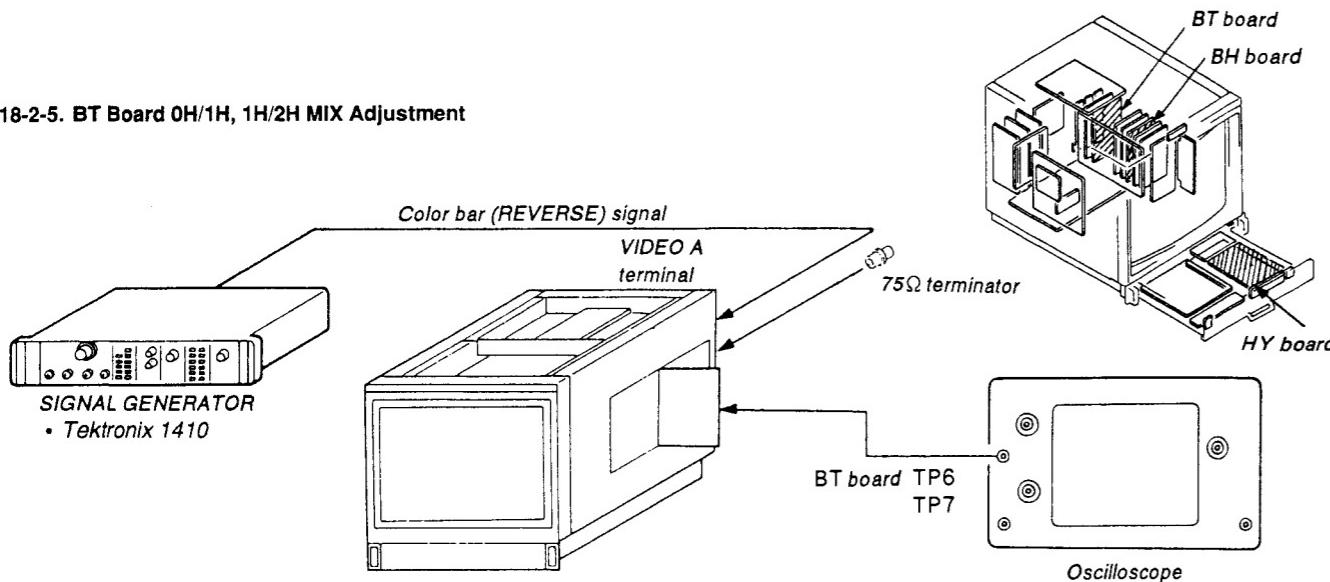
**18-2-4. BT Board Clock to Adjustment**



1. Connect the frequency counter to TP14.
2. Make adjustment as shown below using CV6 (CLK FREQ) on the BT board.  
•  $f_0=21.477 \text{ MHz}$



#### 18-2-5. BT Board 0H/1H, 1H/2H MIX Adjustment



1. Feed a color bar signal (REVERSE) to the VIDEO A INPUT terminal of this set.
2. Connect the oscilloscope to TP6 to magnify the signal inverted area.
3. Turn RV5 (0H/1H MIX LEVEL) and RV10 (0H/1H MIX PHASE) on the BT board until the portion shown in Fig. 18-7 is reduced to a minimum.
4. Connect the oscilloscope to TP7.
5. Turn RV12 (1H/2H MIX PHASE) and RV11 (1H/2H MIX LEVEL) on the BT board until the portion shown in Fig. 18-7 is reduced to a minimum.

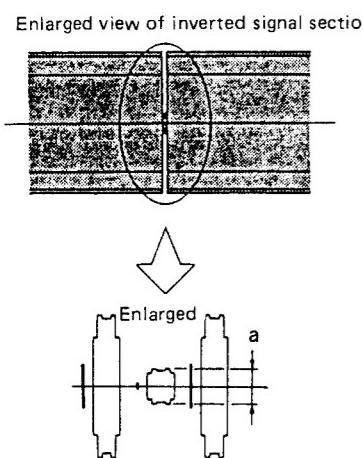
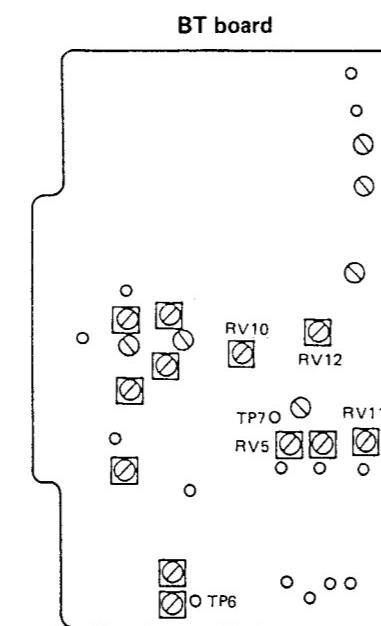
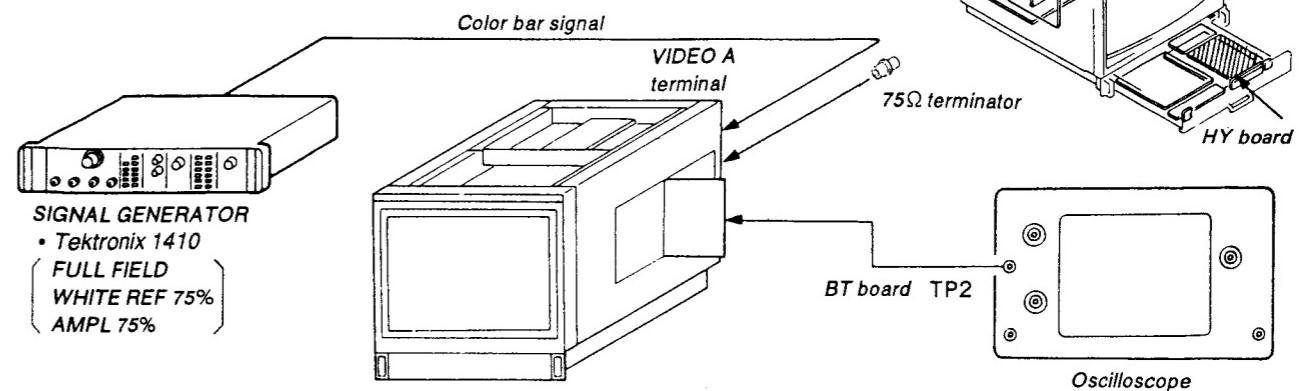


Fig. 18-7



#### 18-2-6. BT Board Y/C MIX Adjustment



1. Feed a color bar signal to the VIDEO A INPUT terminal of this set.
2. Connect the oscilloscope to TP2 on the BT board.
3. Set the PAL S/SECAM F/COMB S button on the sub control panel to the OFF.
4. Turn RV1 (Y/C MIX PHASE) and RV2 (Y/C MIX LEVEL) on the BT board so that the sub-carrier level is reduced to a minimum as shown in Fig. 18-8.

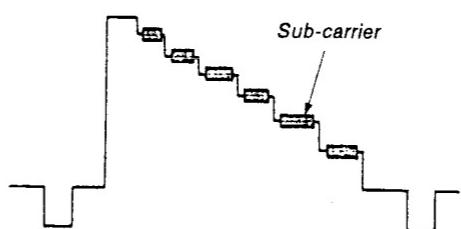
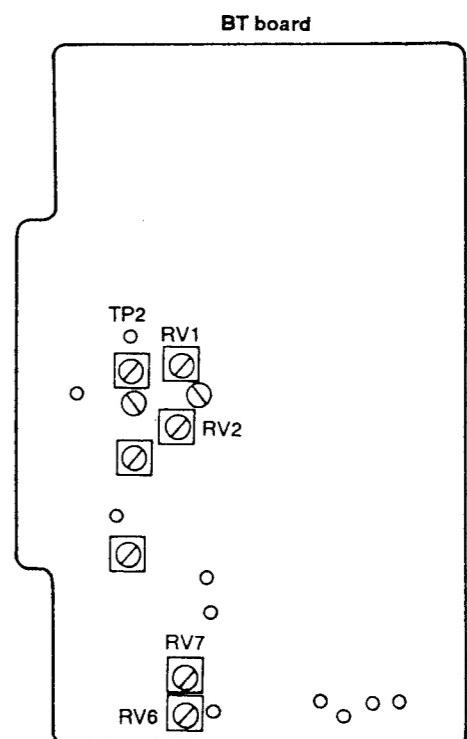
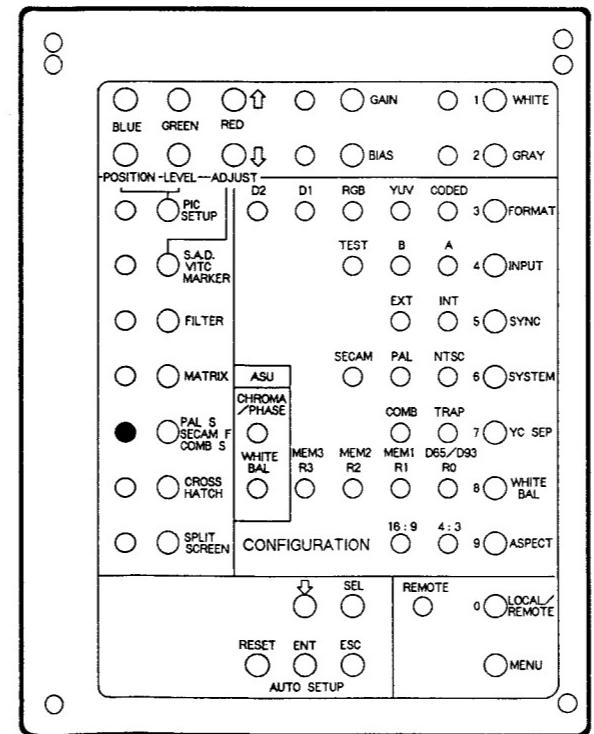
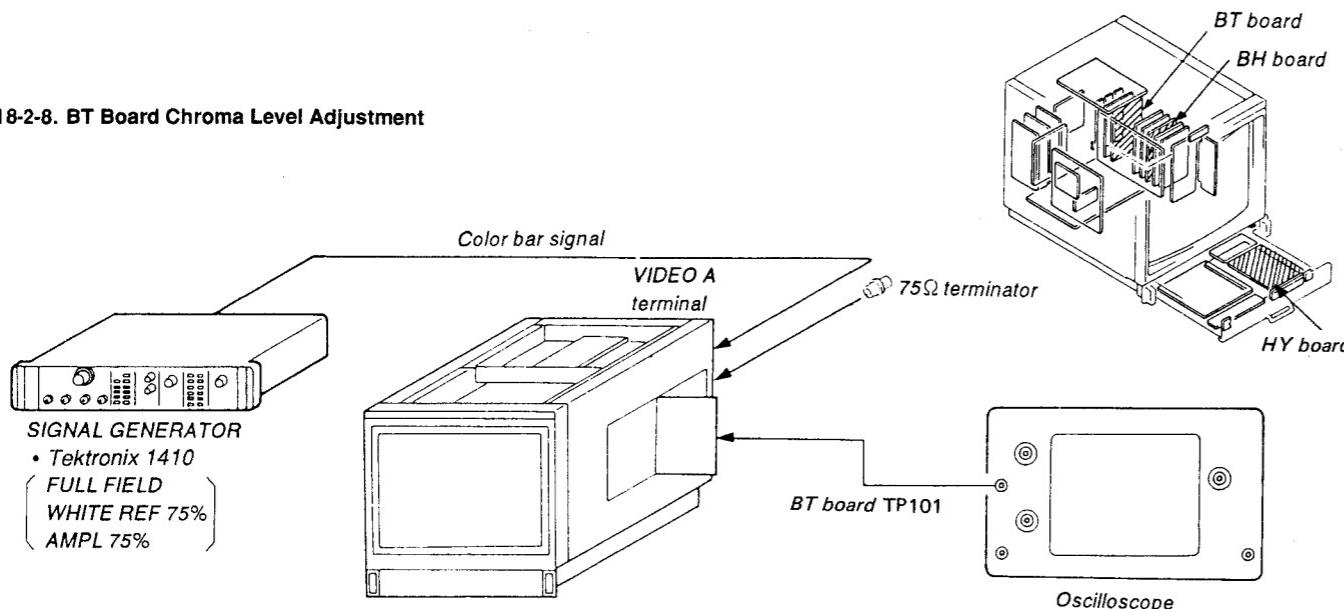


Fig. 18-8

#### SUB CONTROL PANEL (HY board)



**18-2-8. BT Board Chroma Level Adjustment**



1. Feed a color bar signal to the VIDEO A INPUT terminal of this set.
2. Set the YC SEP switch on the sub control panel to the TRAP position.
3. Connect the oscilloscope to TP101 on the BT board.  
(DC 0.1 V/div:H)
4. Turn the POSITION control of the oscilloscope to set the portion B (red) of Fig. 18-9 to the center of the oscilloscope.
5. Set the YC SEP button to the COMB position.
6. Set the PAL S/SECAM F/COMB S button on the sub control panel to the ON.
7. Set the portion B (red) of Fig. 18-9 to the center of the oscilloscope using RV8 (C OUTPUT LEVEL) on the BT board.

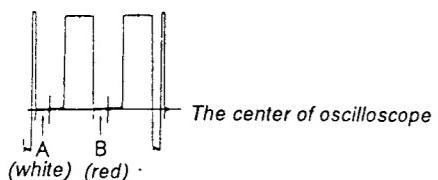
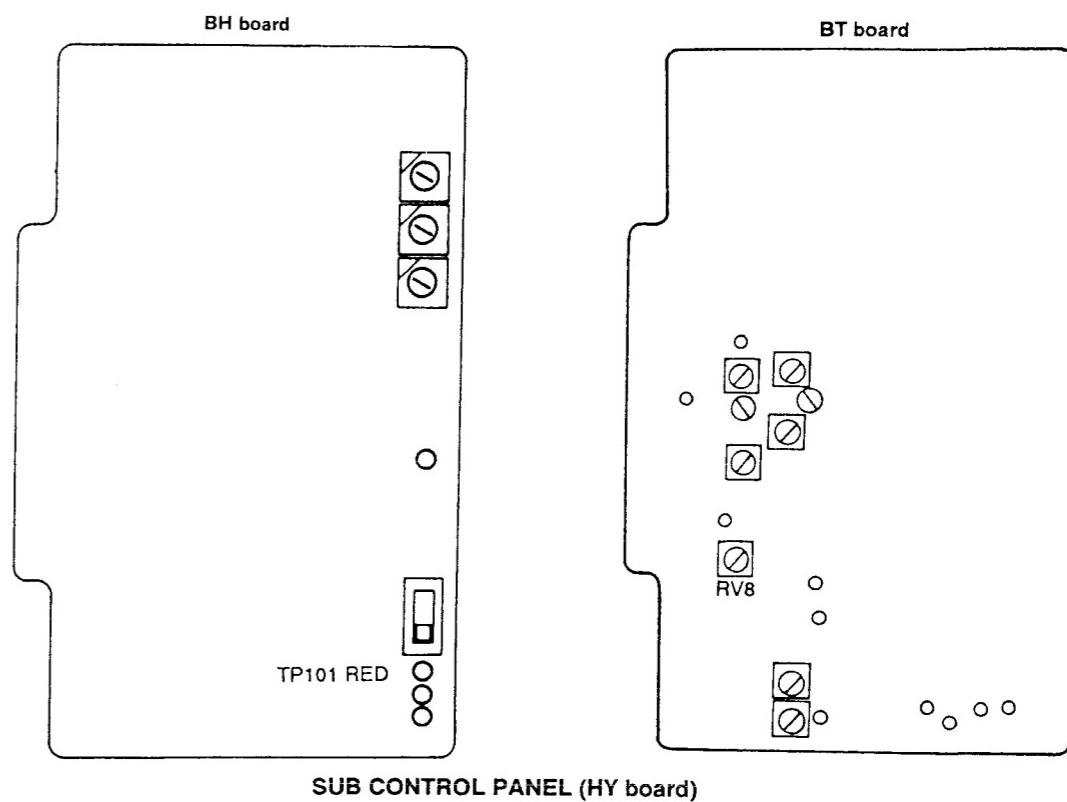
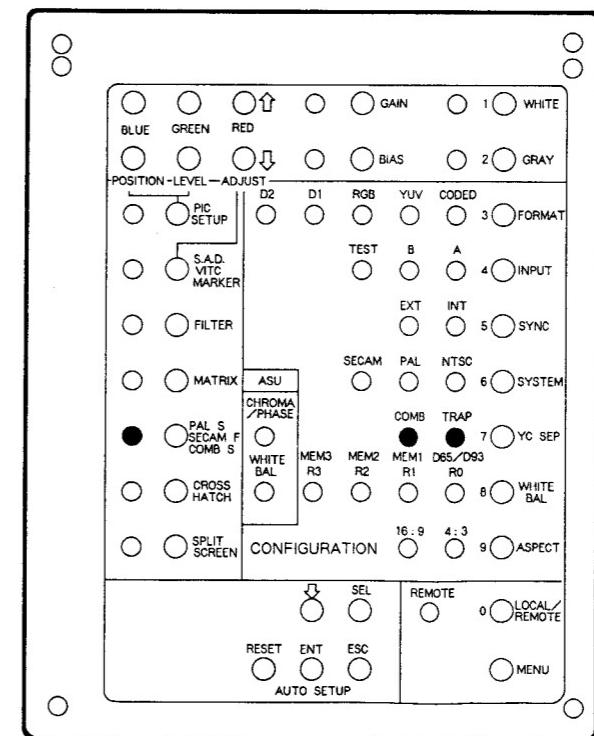


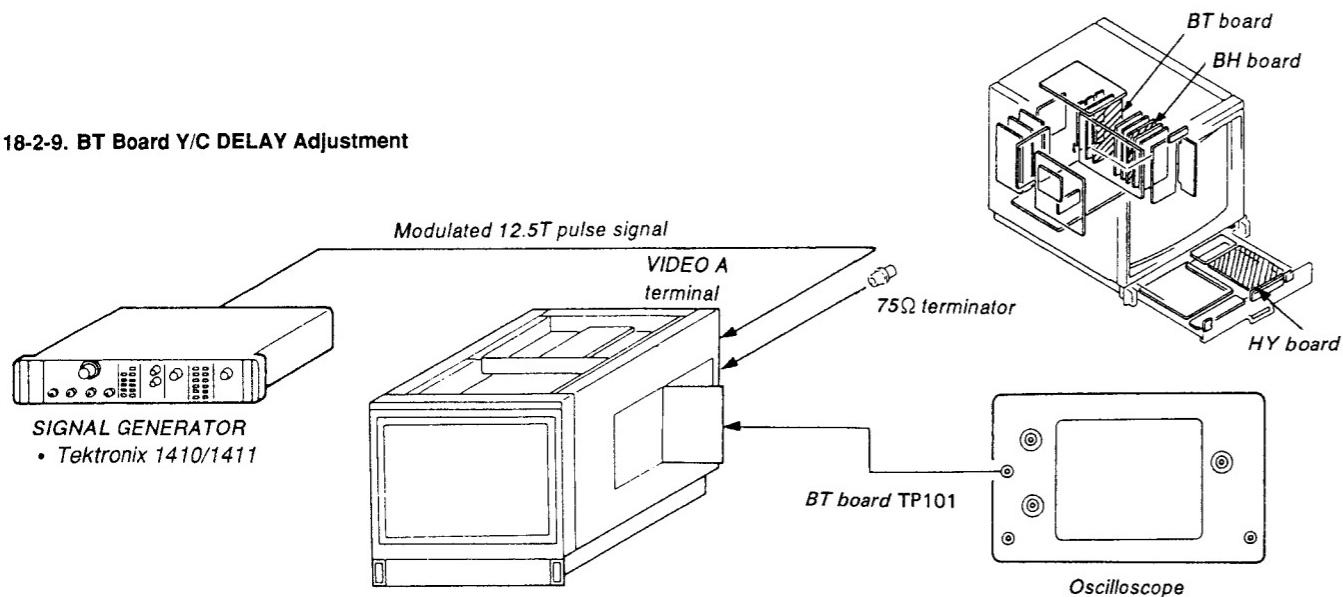
Fig. 18-9



SUB CONTROL PANEL (HY board)



#### 18-2-9. BT Board Y/C DELAY Adjustment



1. Feed a 12.5T pulse signal to the VIDEO A terminal of this set.
2. Set the PAL S/SECAM F/COMB S button to the ON.
3. Connect the oscilloscope to TP101 on the BH board.
4. Turn the CHROMA MANUAL control (on the front panel) until the chroma signal is adjusted as shown in Fig. 18-10.
5. After adjustment, turn RV4 (Y/C DELAY) on the BT board until the waveform is symmetrical.

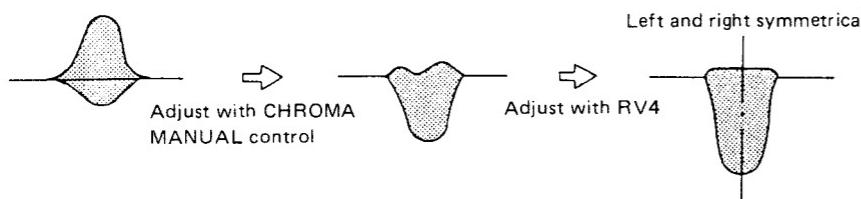
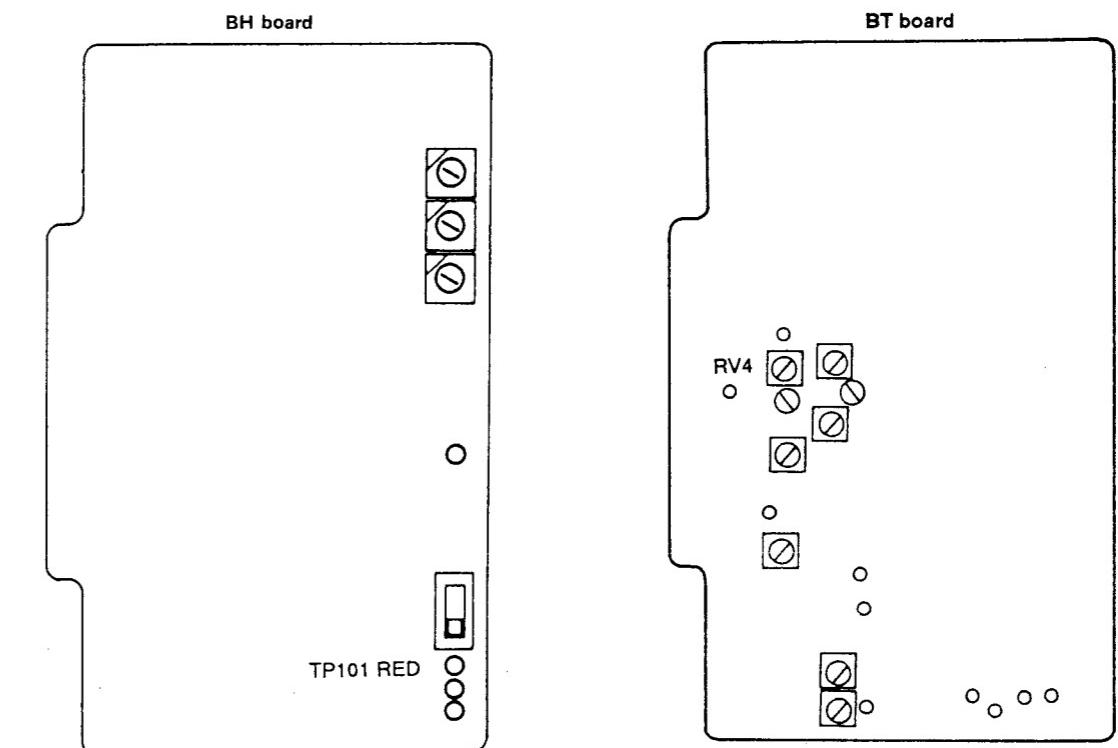
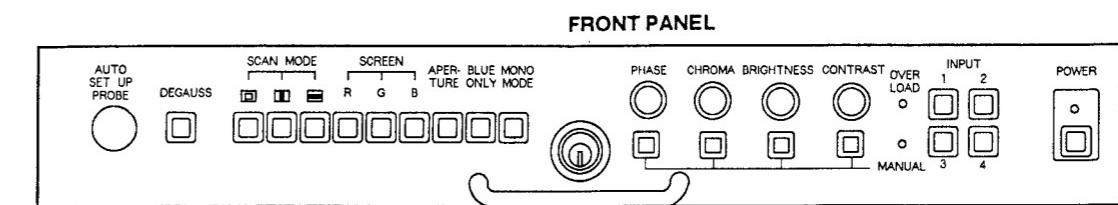
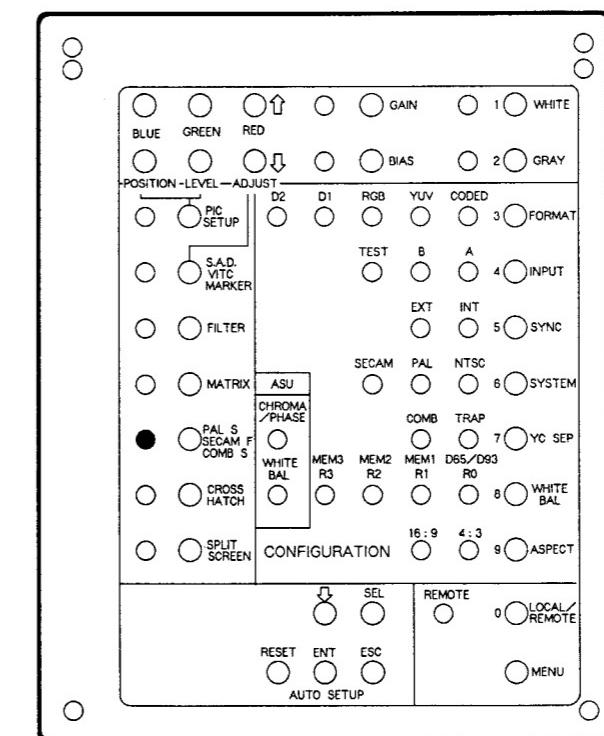


Fig. 18-10

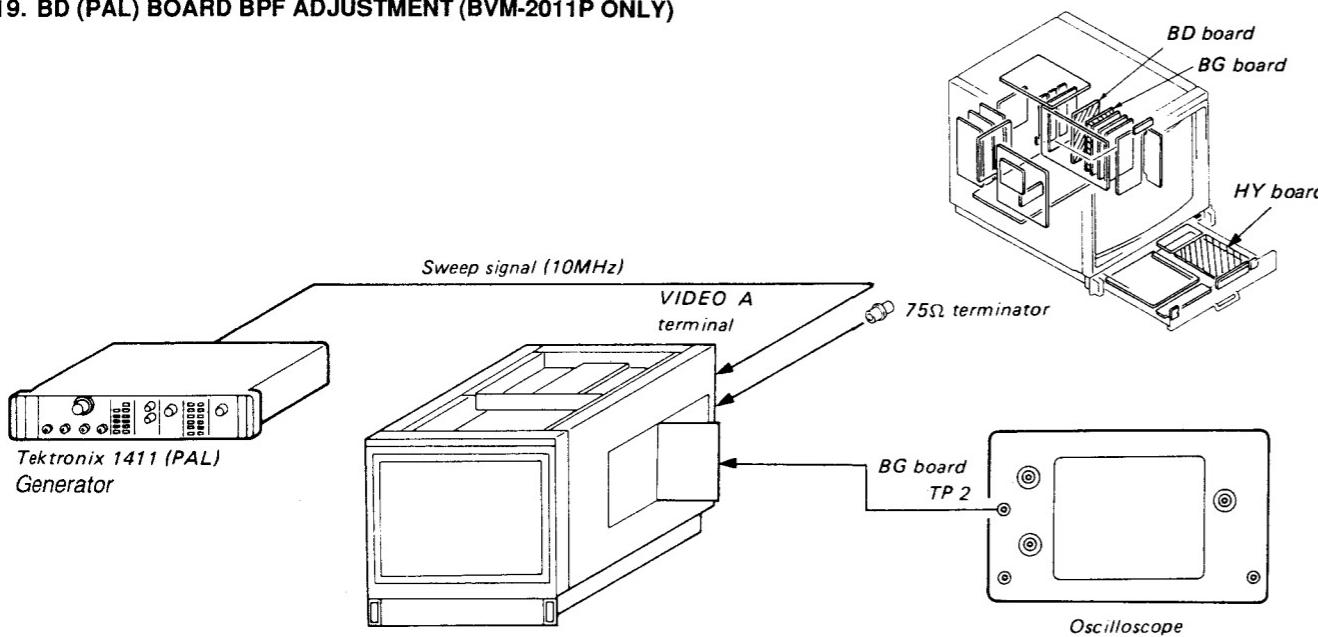


SUB CONTROL PANEL (HY board)



4-62

**19. BD (PAL) BOARD BPF ADJUSTMENT (BVM-2011P ONLY)**



- PAL S/SECAM F/COMB S button (SUB CONTROL PANEL) ..... ON
- 1. Input SWEEP signal (10MHz) to the VIDEO A terminal of the set.
- 2. Connect an oscilloscope to the TP2 on the BG board.
- 3. Make the V/div of oscilloscope into VARIABLE, and match the upper section of waveform to 7 div as shown in Fig. 19-1.

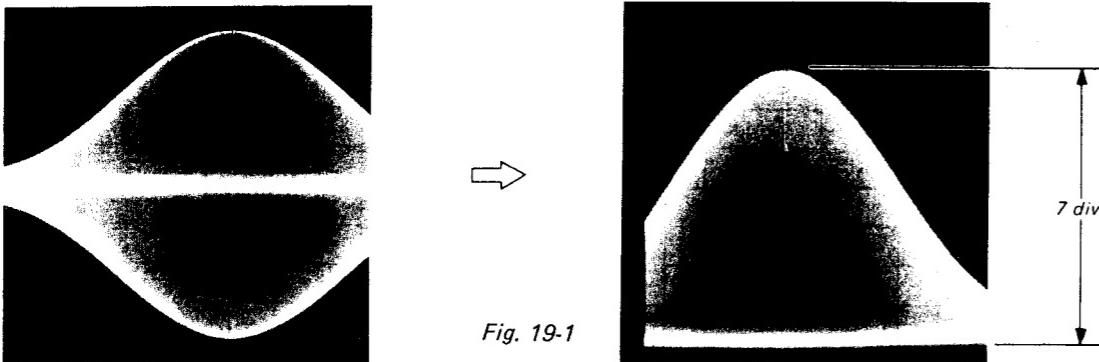
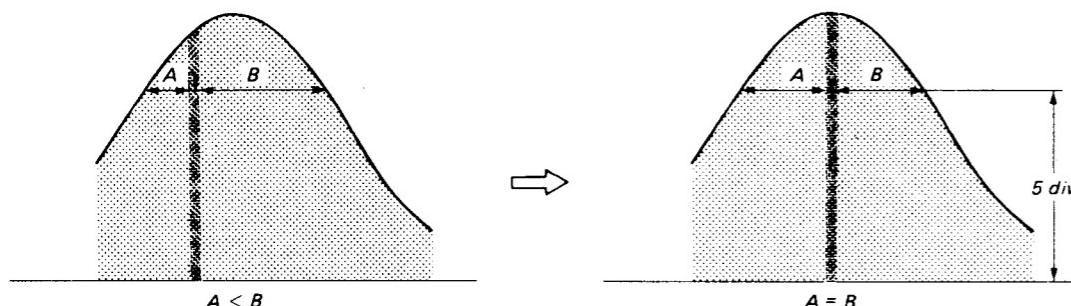


Fig. 19-1

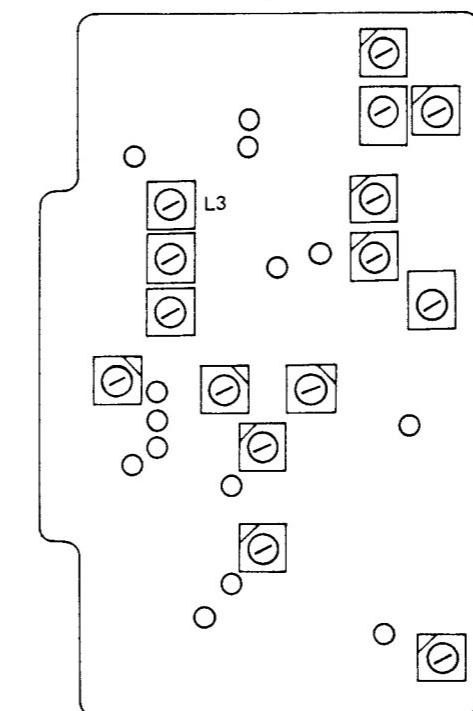
- 4. Adjust L3 on the BD board so that A is equal to B as shown in Fig. 8-2.



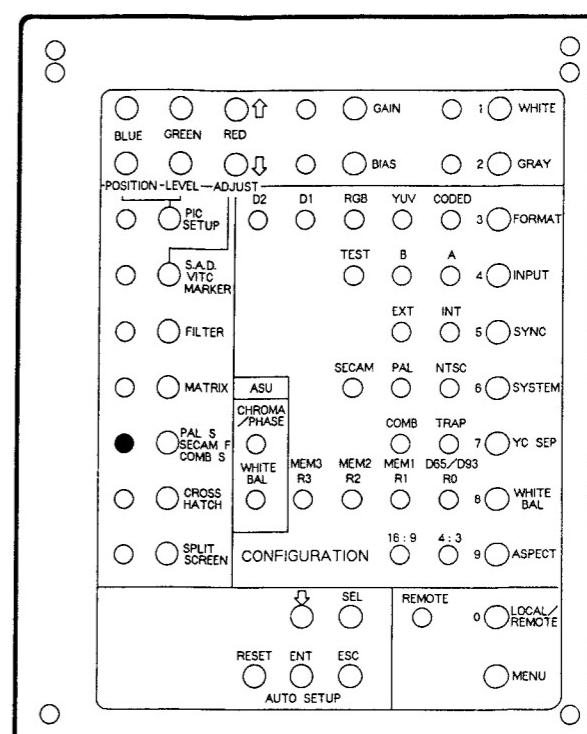
A is equal to B when the amplitude is 5 div.

Fig. 19-2

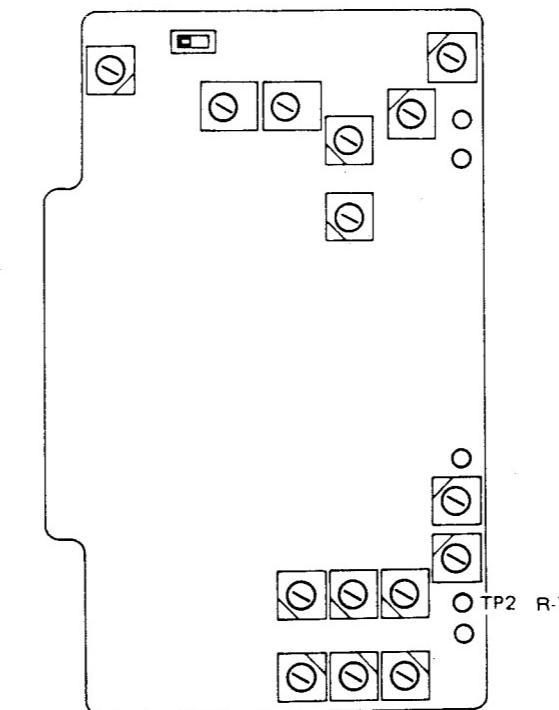
BD board



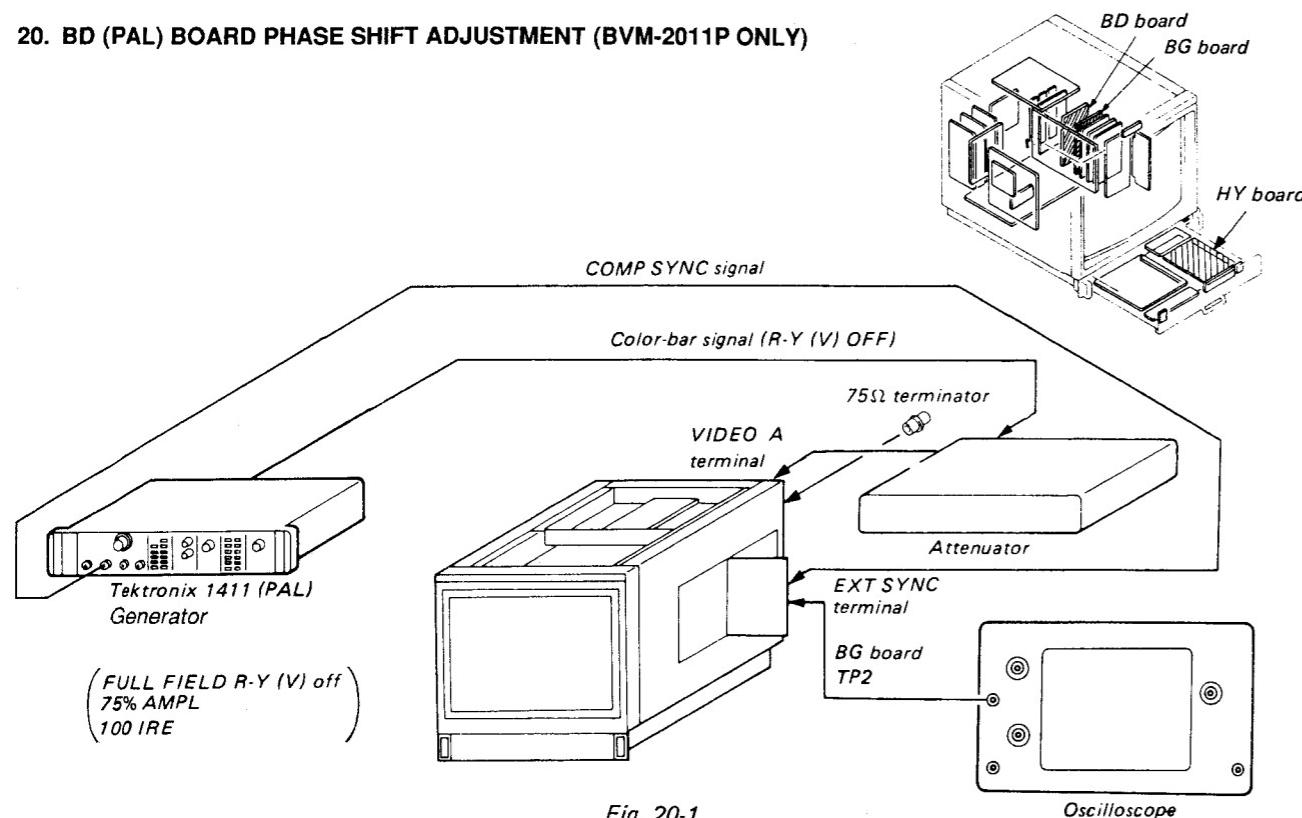
SUB CONTROL PANEL (HY board)



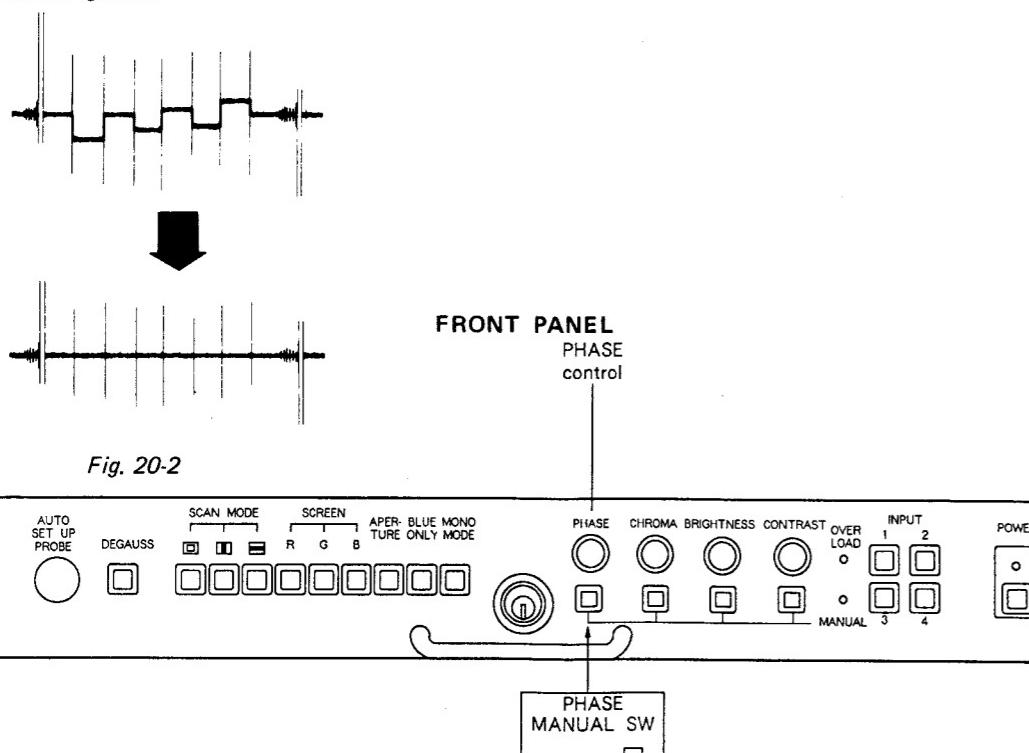
BG board



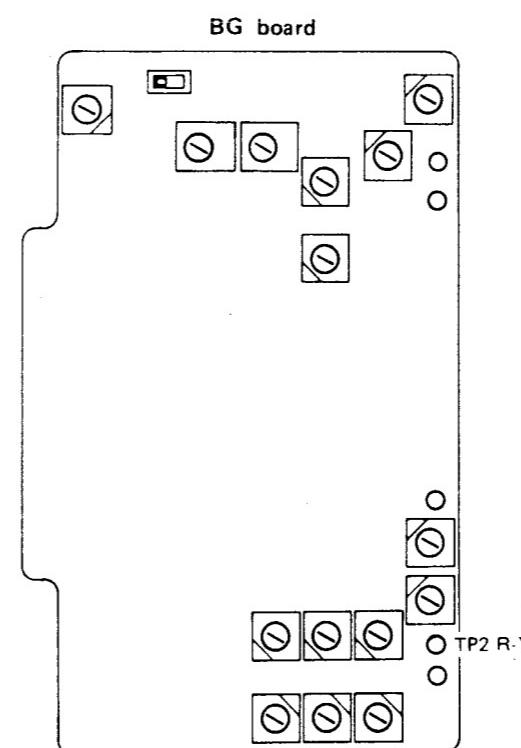
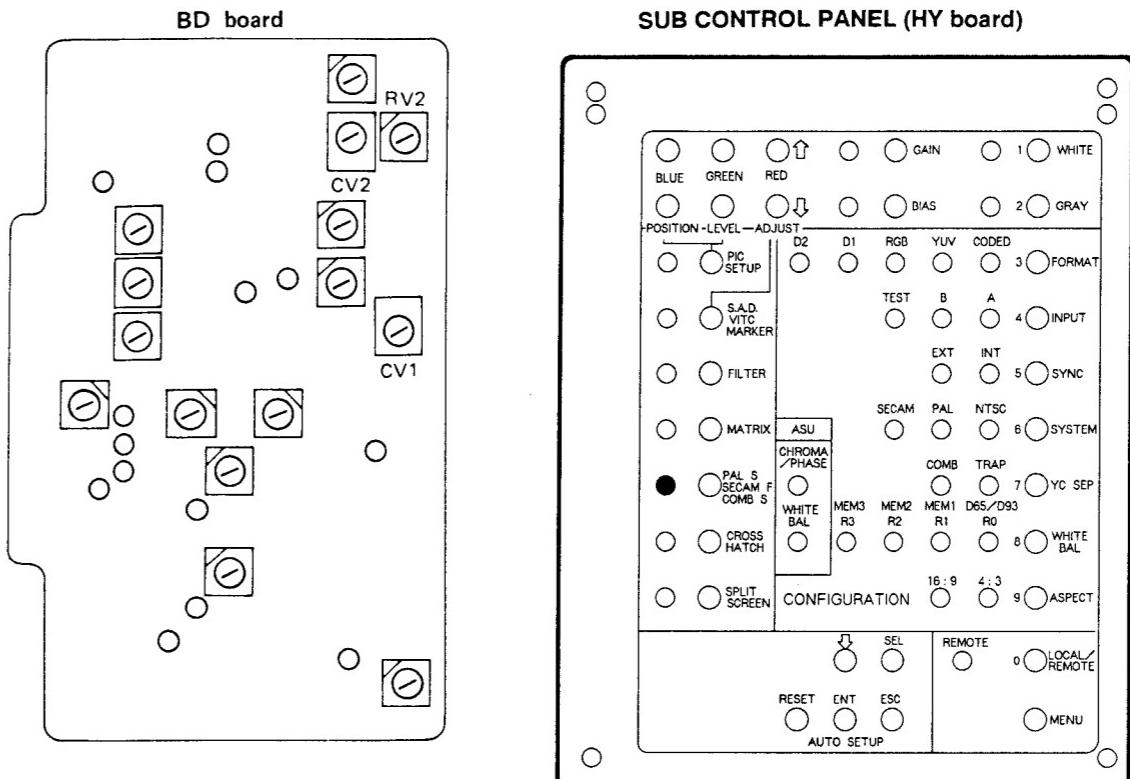
## 20. BD (PAL) BOARD PHASE SHIFT ADJUSTMENT (BVM-2011P ONLY)



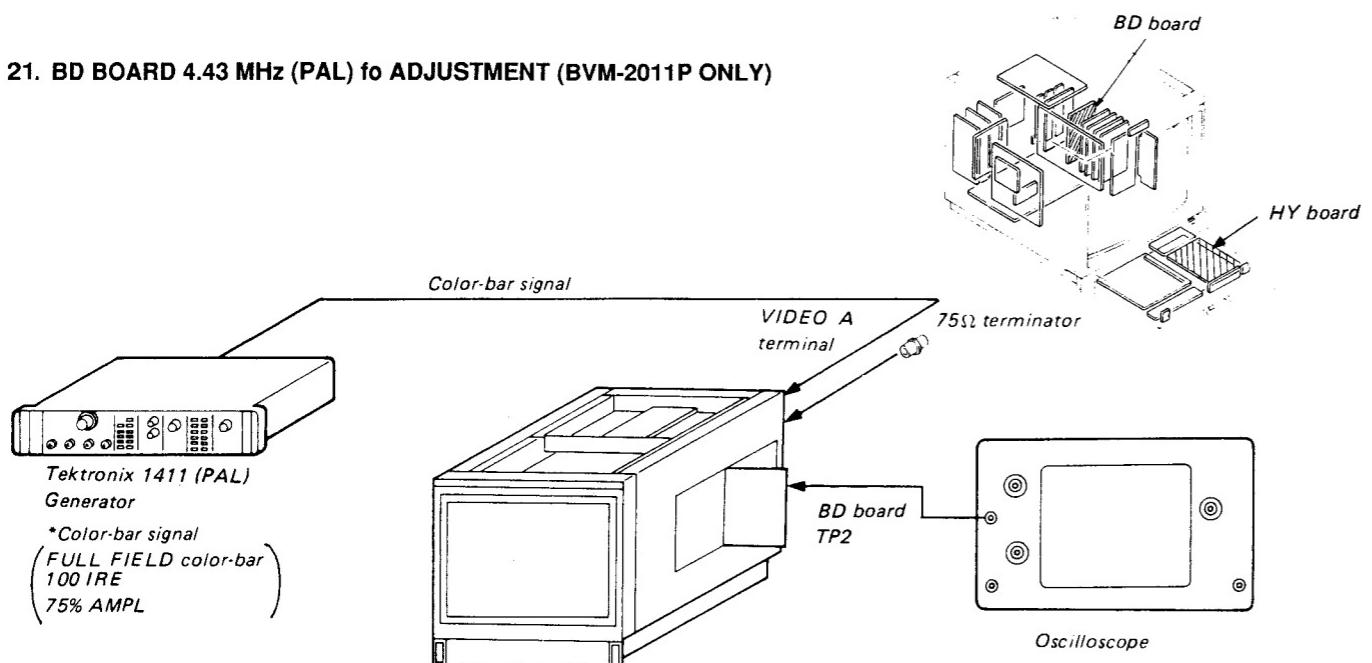
- SYNC button (SUB CONTROL PANEL)..... EXT
  - PAL S/SECAM F/COMB S button (SUB CONTROL PANEL)..... ON
  - RV2 (BD BOARD)..... MECHANICAL CENTER
  - CV1 (BD BOARD)..... MECHANICAL CENTER
  - CV2 (BD BOARD)..... MECHANICAL CENTER
1. Complete the connection as shown in Fig. 20-1.
  2. Connect an oscilloscope to the TP2 on the BG board.
  3. Make the waveform flat with the PHASE control of front panel (R) as shown in Fig. 20-2.
4. Attenuate the signal by 10dB by using attenuator.
5. Adjust RV2 on the BD board so that the output waveform becomes flat as shown in Fig. 20-2.
6. Restore the attenuator to 0dB.
7. Repeat the steps 3 to 5.



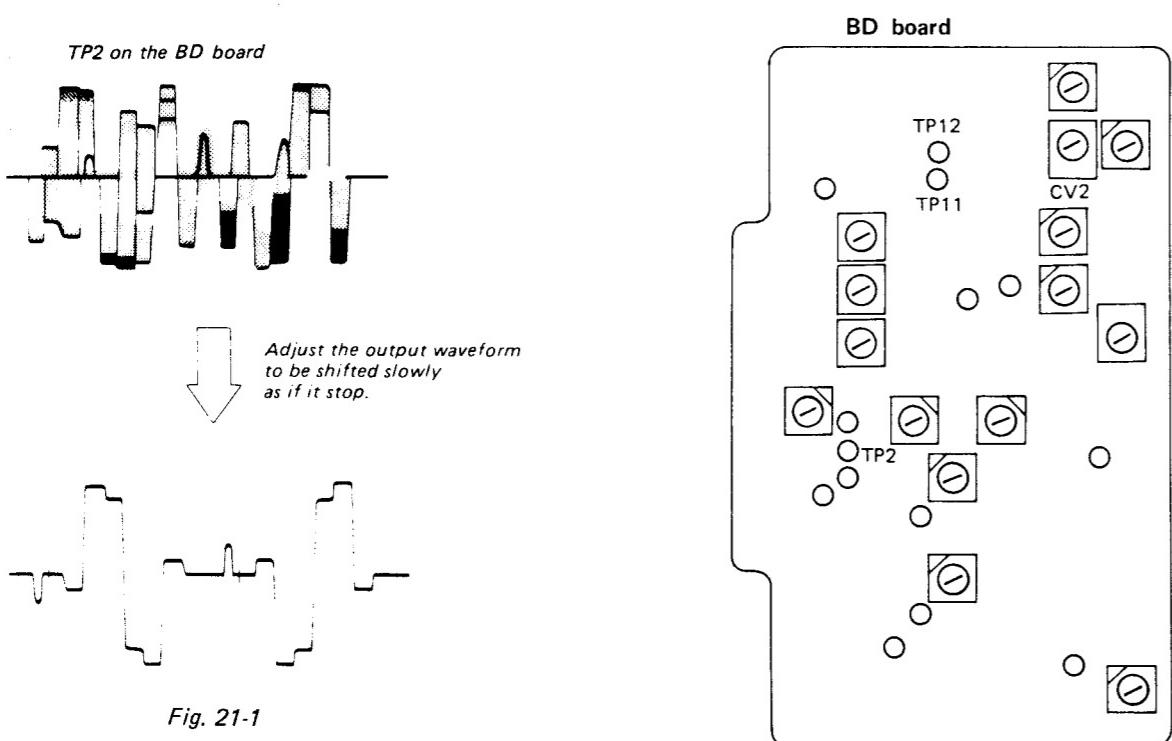
4-65



**21. BD BOARD 4.43 MHz (PAL) to ADJUSTMENT (BVM-2011P ONLY)**

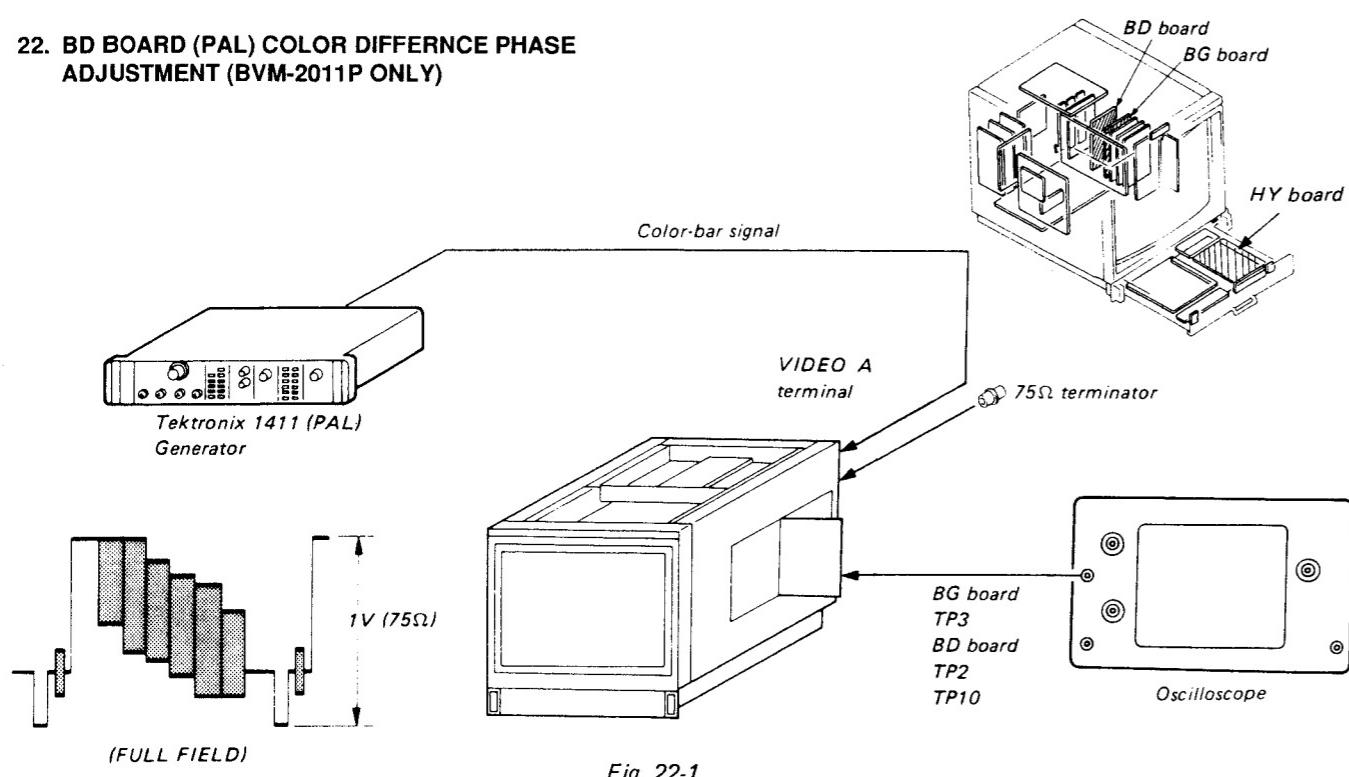


1. Input color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP2 of BD board.
3. Short-circuit between TP11, 12 of BD board with a jumper wire.
4. Adjust CV2 of BD board so that the output waveform is shifted slowly as shown in Fig. 21-1.
5. Turn off the power of this monitor, and disconnect TP11, 12 of BD board.



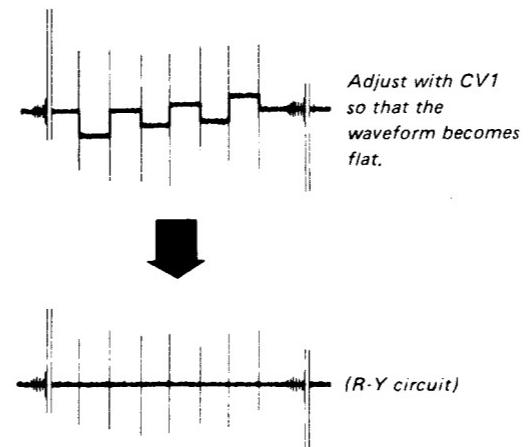
**Fig. 21-1**

**22. BD BOARD (PAL) COLOR DIFFERENCE PHASE ADJUSTMENT (BVM-2011P ONLY)**

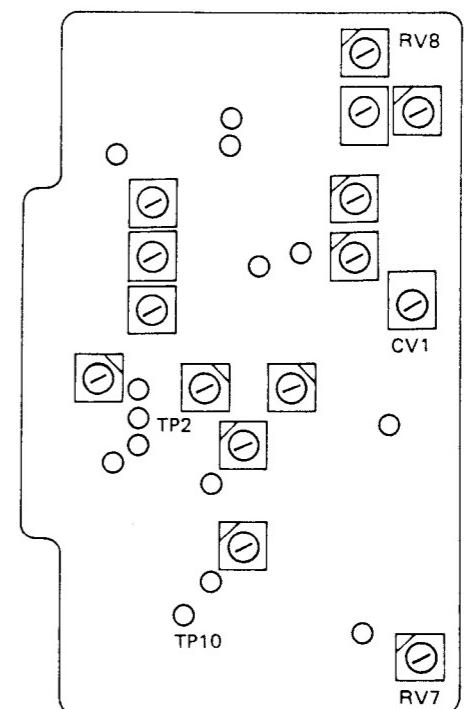


**Quad Adjustment**

5. Connect the oscilloscope probe to TP on the BD board. Turn on the U signal of the signal generator, and turn off the V (R-Y) signal. Then adjust CV1 on the BD board so that the output waveform is flat. (See Fig. 22-3.)
6. Repeat the steps 3 to 6.



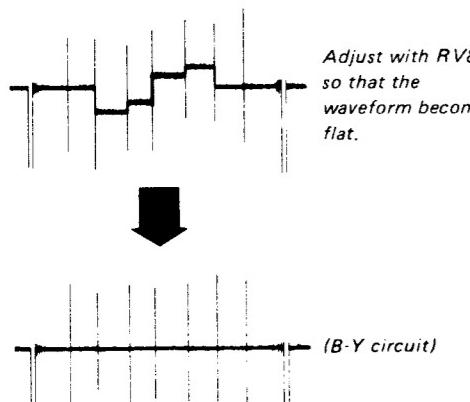
BD board



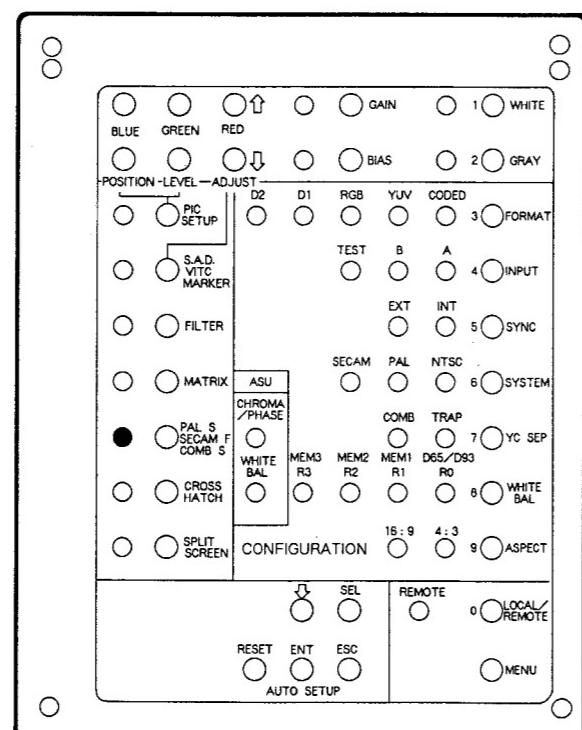
1. Complete the connections as shown in Fig. 22-1.
2. Turn on the power of this monitor. Set the INPUT switch to the 1 position, the SYNC switch to the INT position, and the PAL S/SECAM F/COMB S button to the ON.

**B-Y System Adjustment**

3. Connect the oscilloscope probe to TP3 on the BG board, and turn off the U (B-Y) signal of the signal generator.
4. Set the oscilloscope sensitivity to 20mV/DIV, and adjust RV8 on the BD board so that the output waveform is flat. (See Fig. 22-2.)



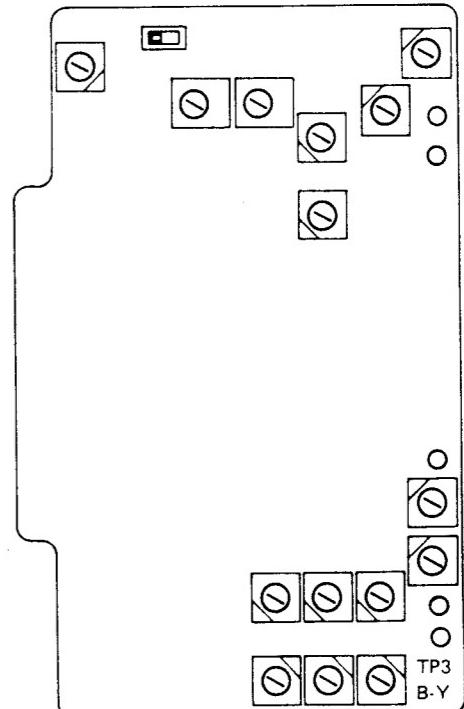
SUB CONTROL PANEL (HY board)



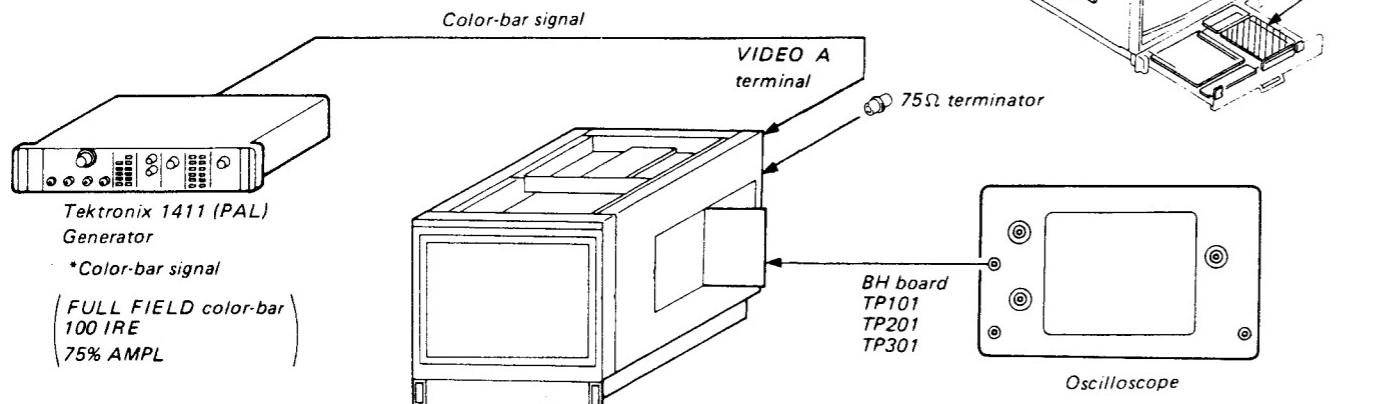
**PAL-D Phase Adjustment**

7. Set the PAL S/SECAM F/COMB S button to the OFF and turn on the V signal of the signal generator, and turn off U signal.
8. Connect the oscilloscope probe to TP10 on the BD board.
9. Adjust RV7 on the BD board so that the output waveform is flat. (See Fig. 22-2.)
10. Finally, perform the adjustments of 3 and 4 by directly mounting the BD board to the set, without using the extension board.

BG Board



**23. BD BOARD (PAL) COLOR DIFFERENCE LEVEL ADJUSTMENT (BVM-2011P ONLY)**



- PAL S/SECAM F/COMB S button (SUB CONTROL PANEL)..... ON
- 1. Input color-bar signal to the VIDEO A terminal of the set.
- 2. Connect an oscilloscope to the TP101 of BH board.
- 3. Adjust RV3 of BD or BM board so that the levels with \* is flat as shown in Fig. 23-1.

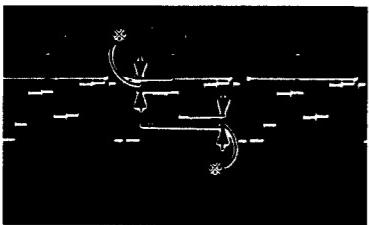
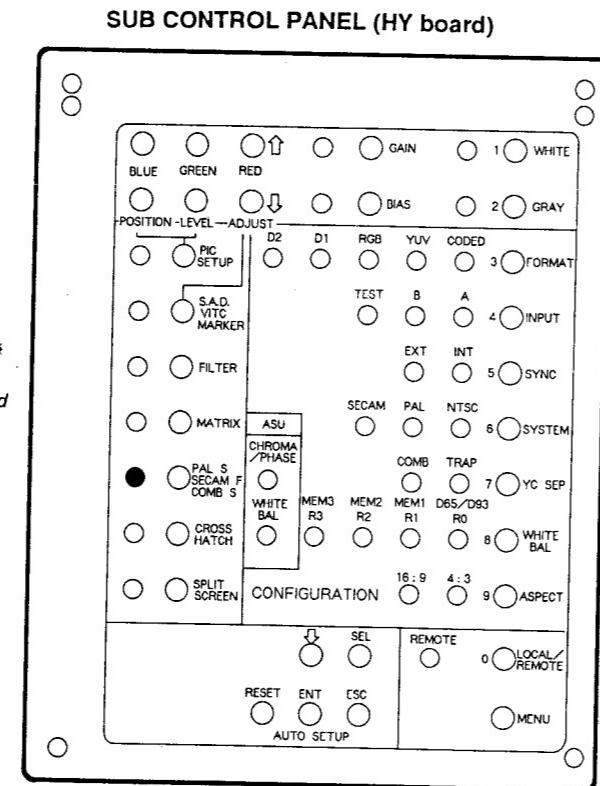


Fig. 23-1



- 4. Connect an oscilloscope to the TP301 of BH board.
- 5. Adjust RV4 of BD board so that the output waveform as shown in Fig. 23-2.

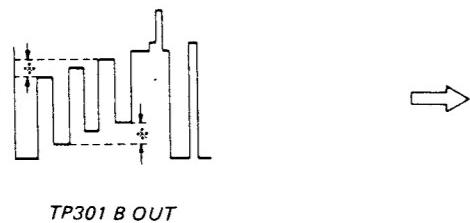


Fig. 23-2

6. Connect an oscilloscope to the TP201 of BH board.
7. Adjust RV4 and RV5 of BG board so that the INPUT waveform becomes flat as shown in Fig. 23-3.

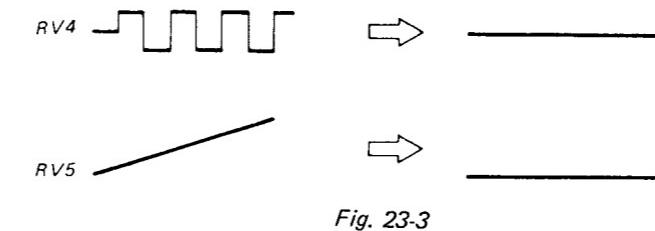
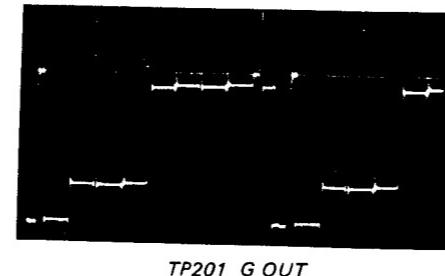
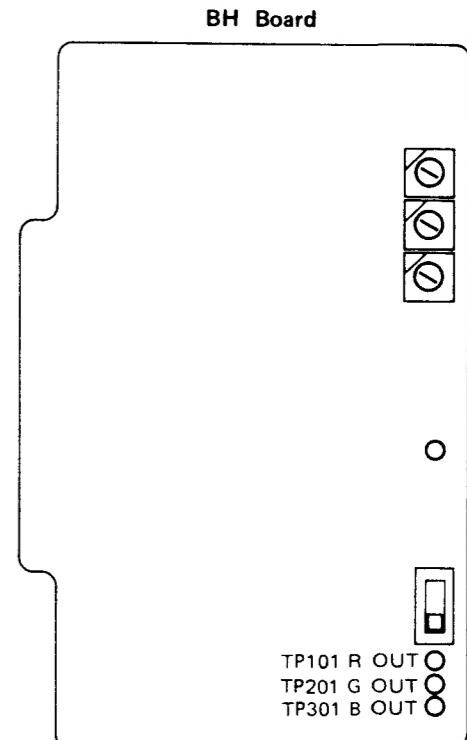
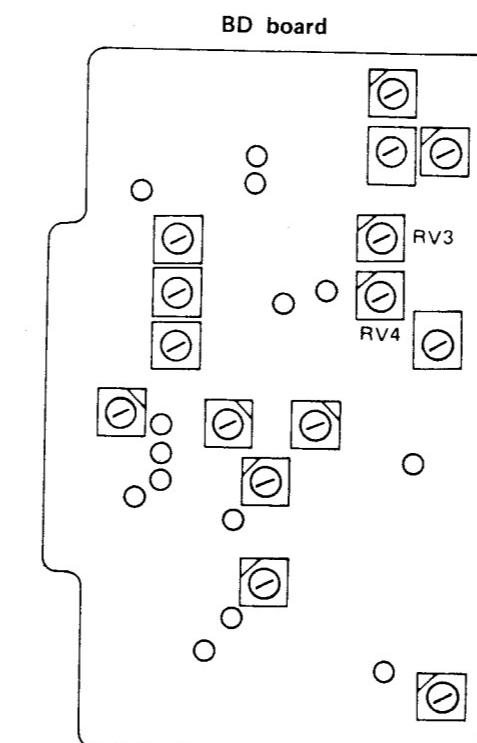
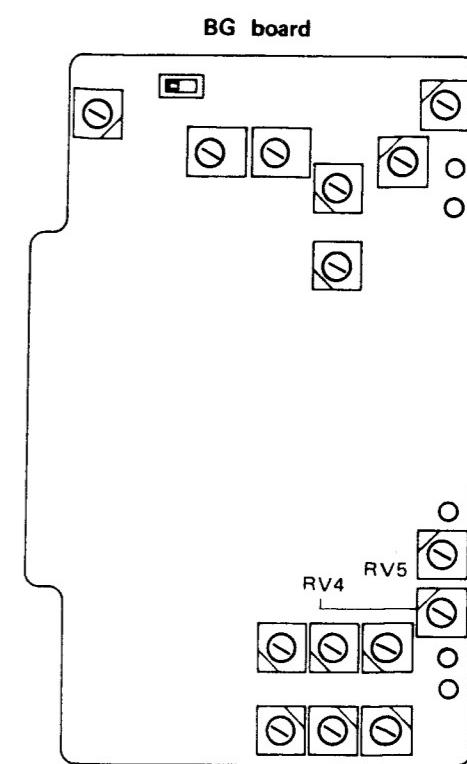
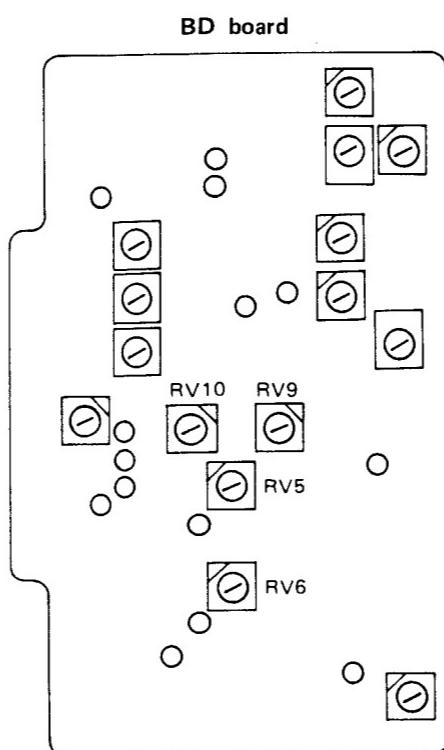
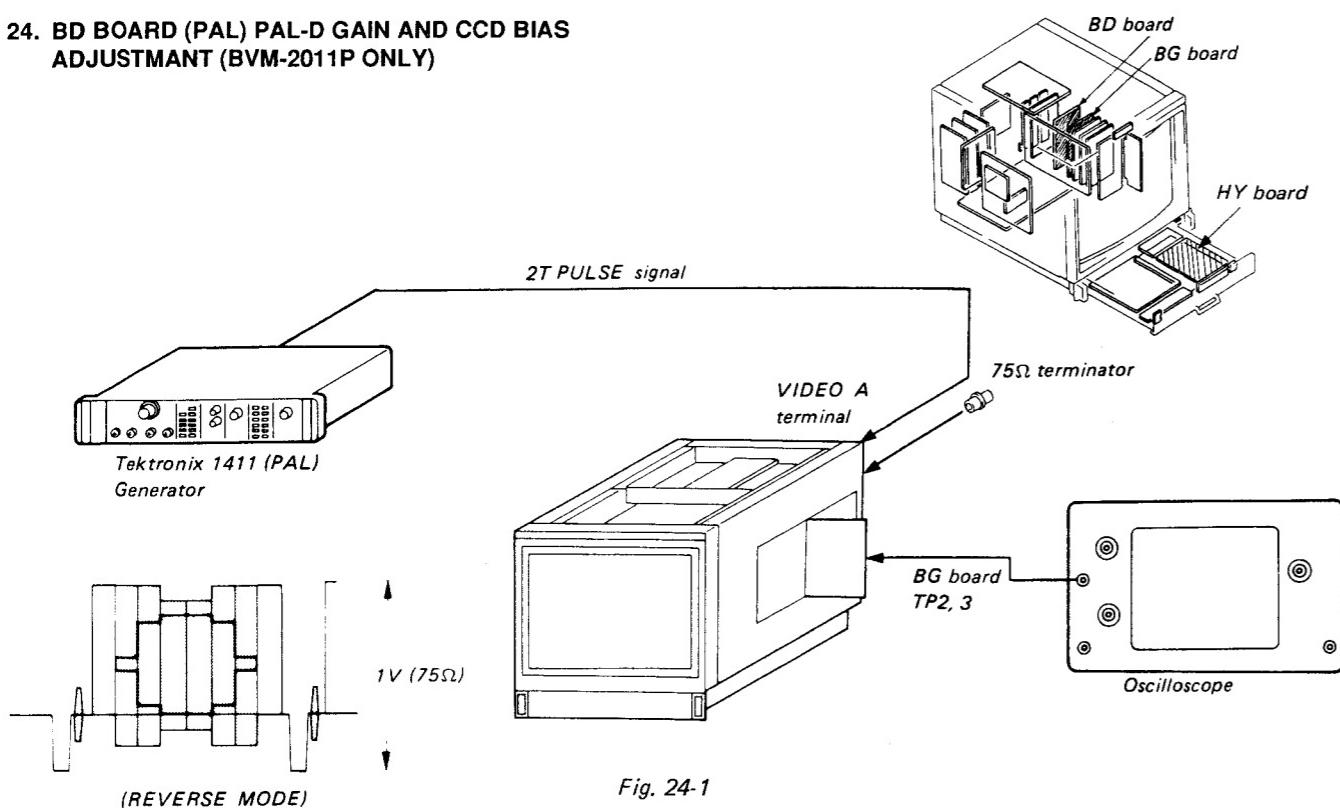


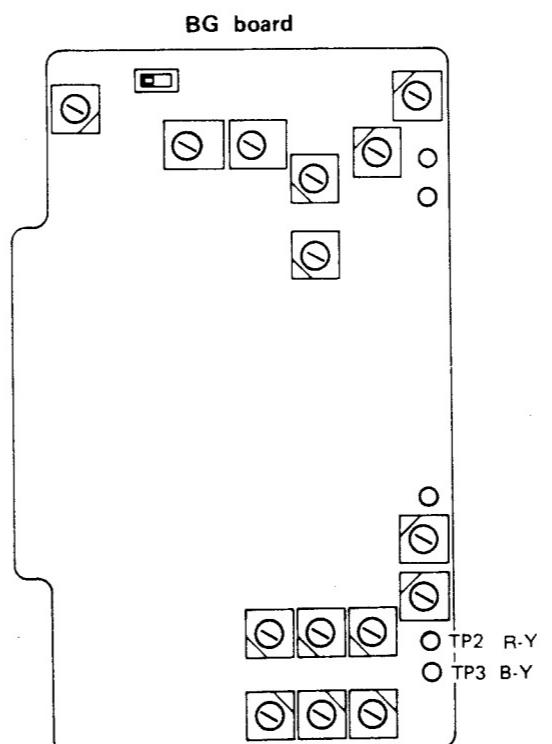
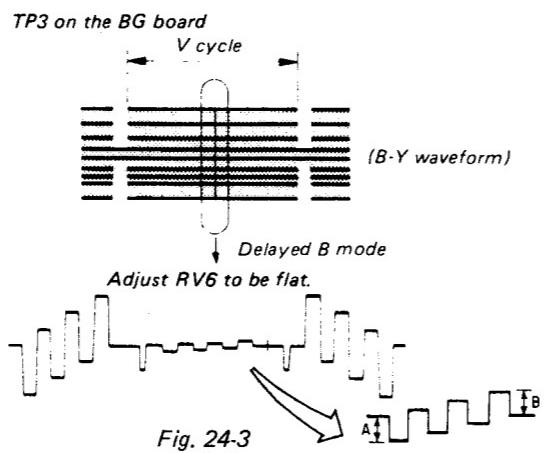
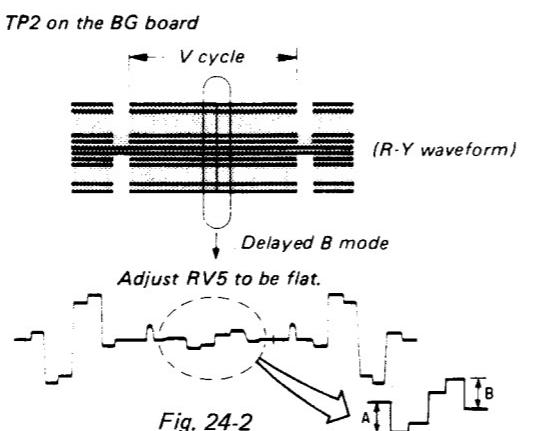
Fig. 23-3



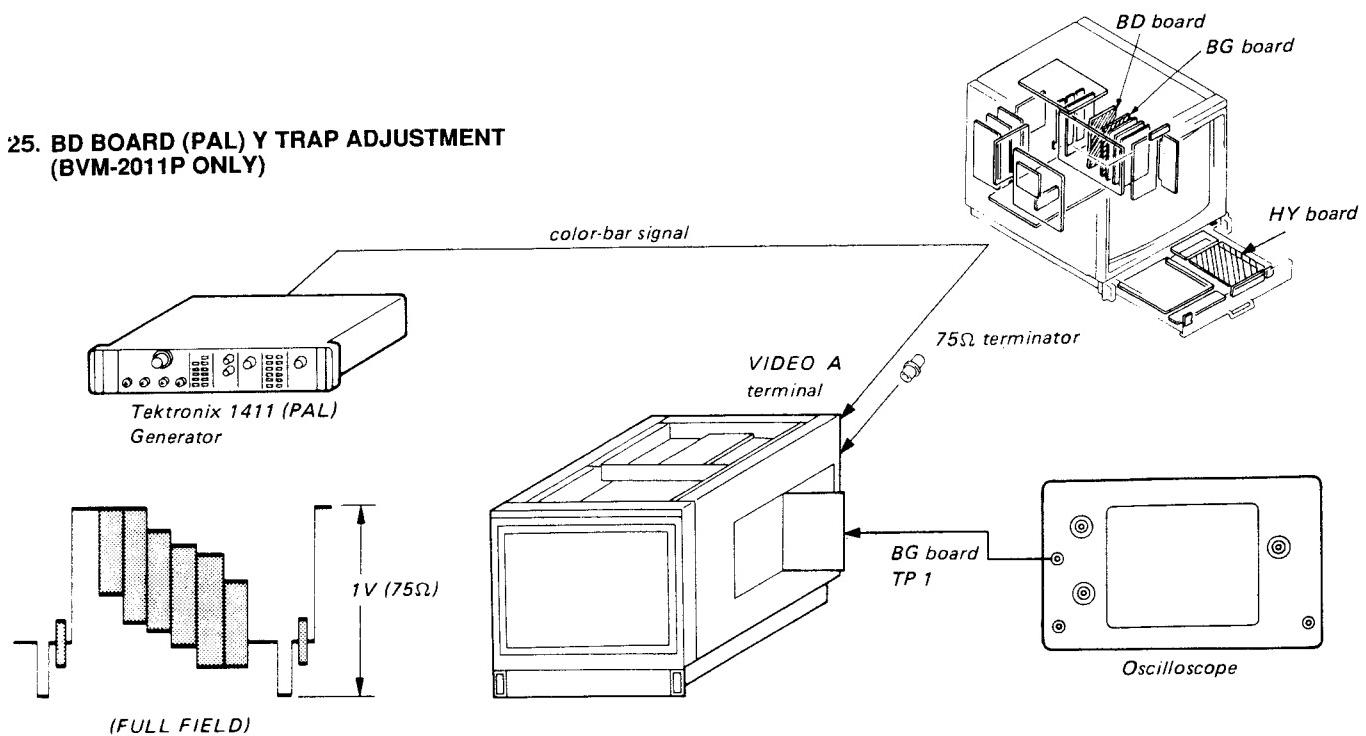
**24. BD BOARD (PAL) PAL-D GAIN AND CCD BIAS  
ADJUSTMENT (BVM-2011P ONLY)**



- PAL S/SECAM F/COMB S button (SUB CONTROL PANEL) ..... OFF
- 1. Complete the connection as shown in Fig. 24-1.  
Turn on the power of this monitor. Set the INPUT switch to the 1 position, and the SYNC switch to the INT position.
- 2. Connect the oscilloscope probe to TP2 on the BG board.
- 3. Turn RV5 and RV6 on the BD board fully clockwise.
- 4. By observing the waveform shown in Fig. 24-2, adjust RV9 on the BD board so that it becomes A=B.
- 5. Adjust RV5 on the BD board so that the waveform shown in Fig. 24-2 becomes flat.
- 6. Connect the probe of the oscilloscope to TP3 on the BG board and observe the section shown in Fig. 24-3.
- 7. Adjust RV10 on the BD board so that the waveform of the oscilloscope becomes A=B.
- 8. Adjust RV6 on the BD board so that the waveform shown in Fig. 24-3 becomes flat.



**25. BD BOARD (PAL) Y TRAP ADJUSTMENT  
(BVM-2011P ONLY)**



1. Input color-bar signal to VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP1 of BG board.
3. Adjust L1 of BD board so that 4.43 MHz (PAL) subcarrier is minimum as shown in Fig. 25-1.

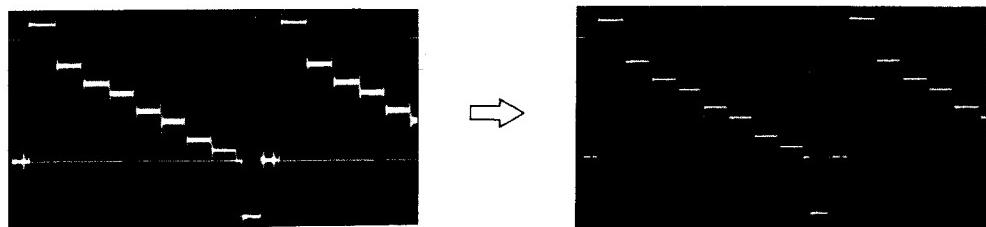
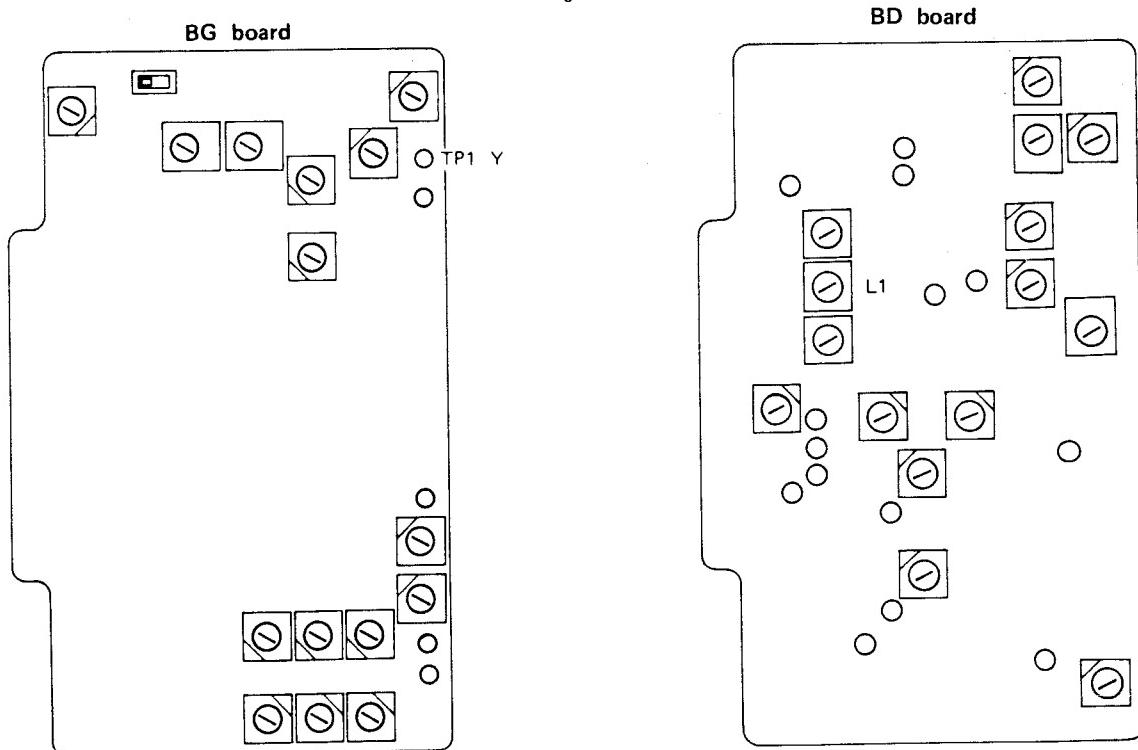
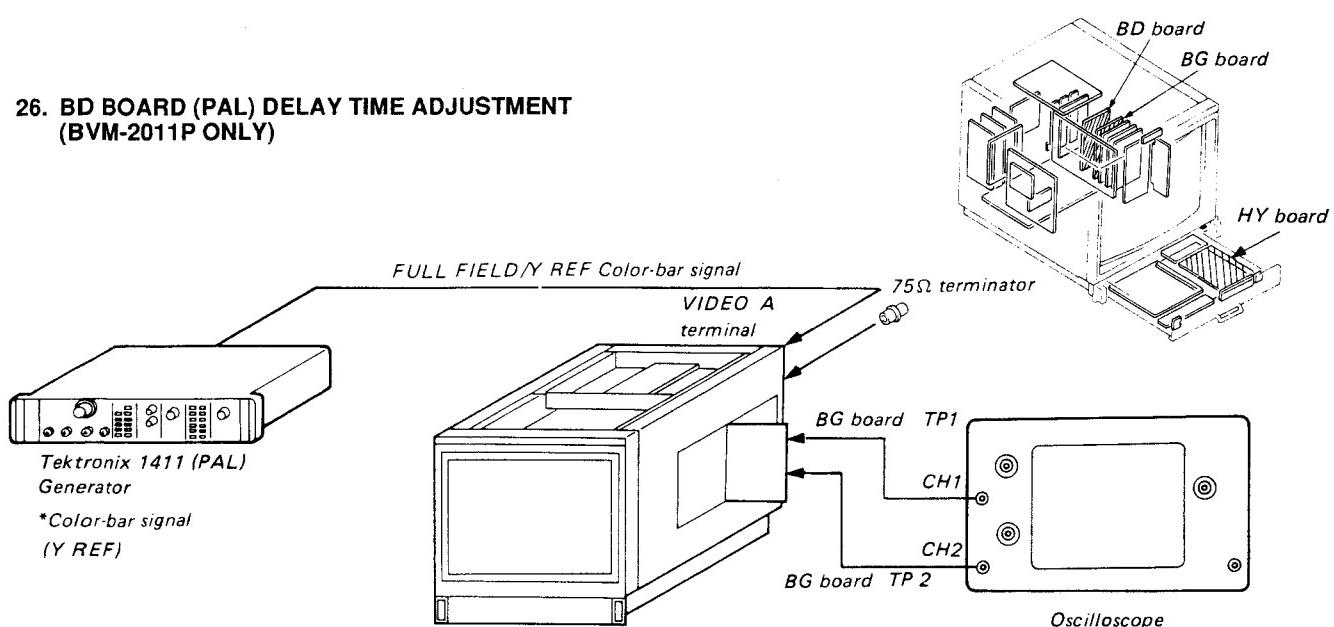


Fig. 25-1



**26. BD BOARD (PAL) DELAY TIME ADJUSTMENT  
(BVM-2011P ONLY)**



- PAL S/SECAM F/COMB S button (SUB CONTPOL PANEL) ..... ON
- 1. Input color-bar signal (FULL FIELD/Y REF) to the VIDEO A terminal of the set.

2. Connect an oscilloscope (CH-1 probe) to the TP1 of BG board and connect an oscilloscope (CH-2 probe) to the TP2 of BG board (VERT mode of the oscilloscope is CHOP).
3. Adjust RV1 of BD board so that output waveform as shown in Fig. 26-1.

Adjust RV1 so that E is equal to F.

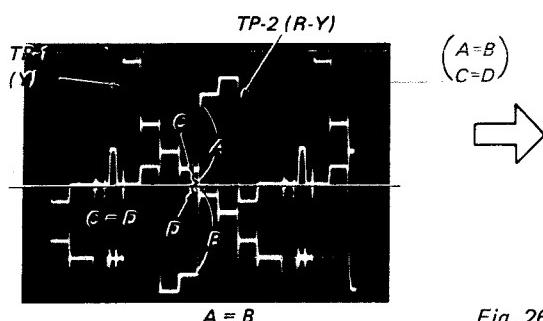
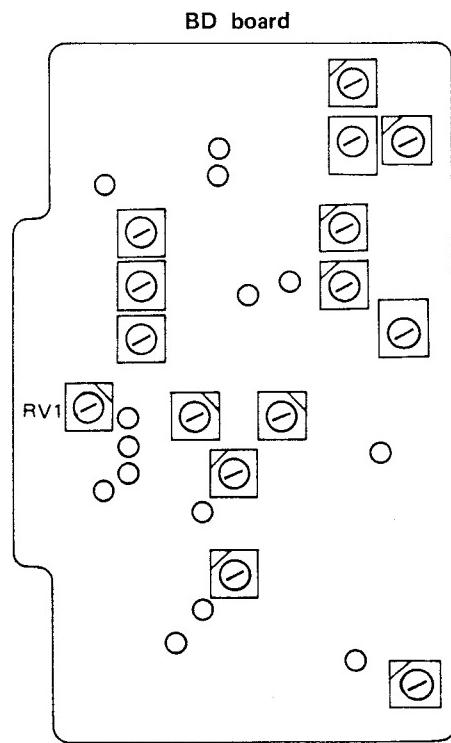
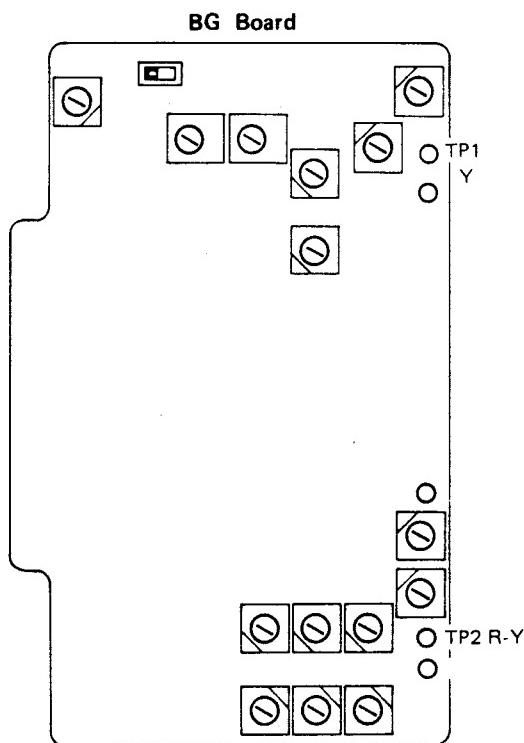
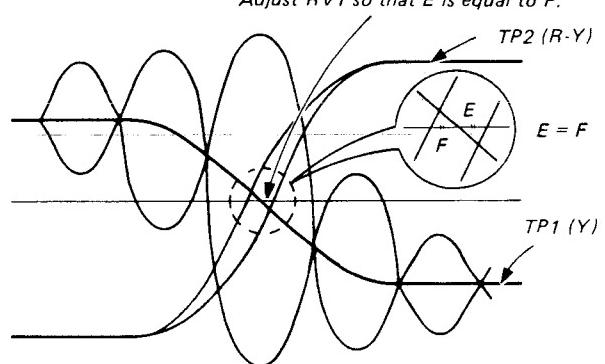
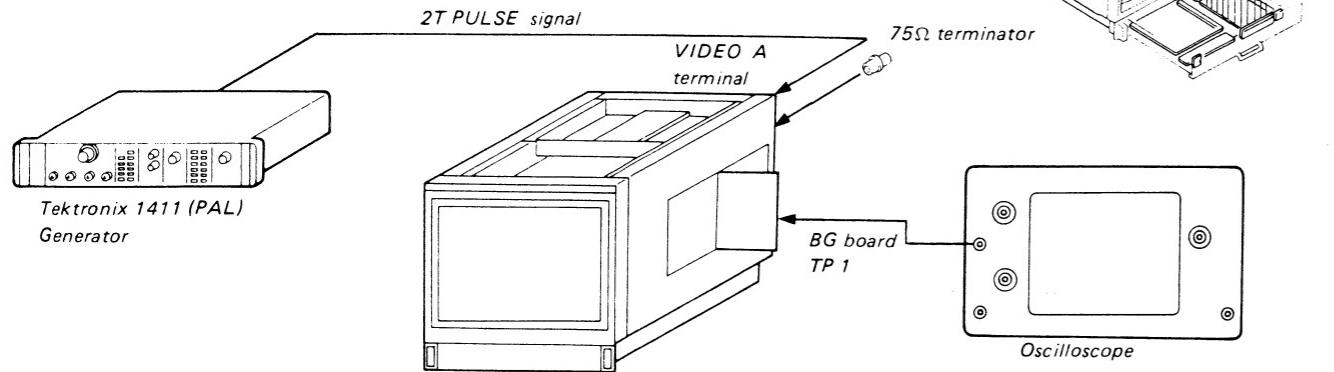


Fig. 26-1



**27. BD BOARD (PAL) 2T PULSE CORRECTION  
ADJUSTMENT (BVM-2011P ONLY)**



1. Input 2T pulse signal to VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP1 of BG board.
3. Adjust L2 of BD or BM board so that A is equal to B as shown in Fig. 27-1.

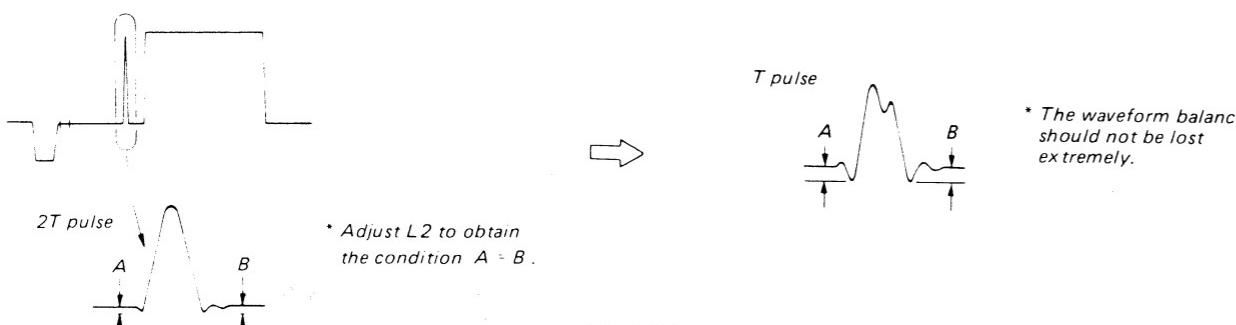
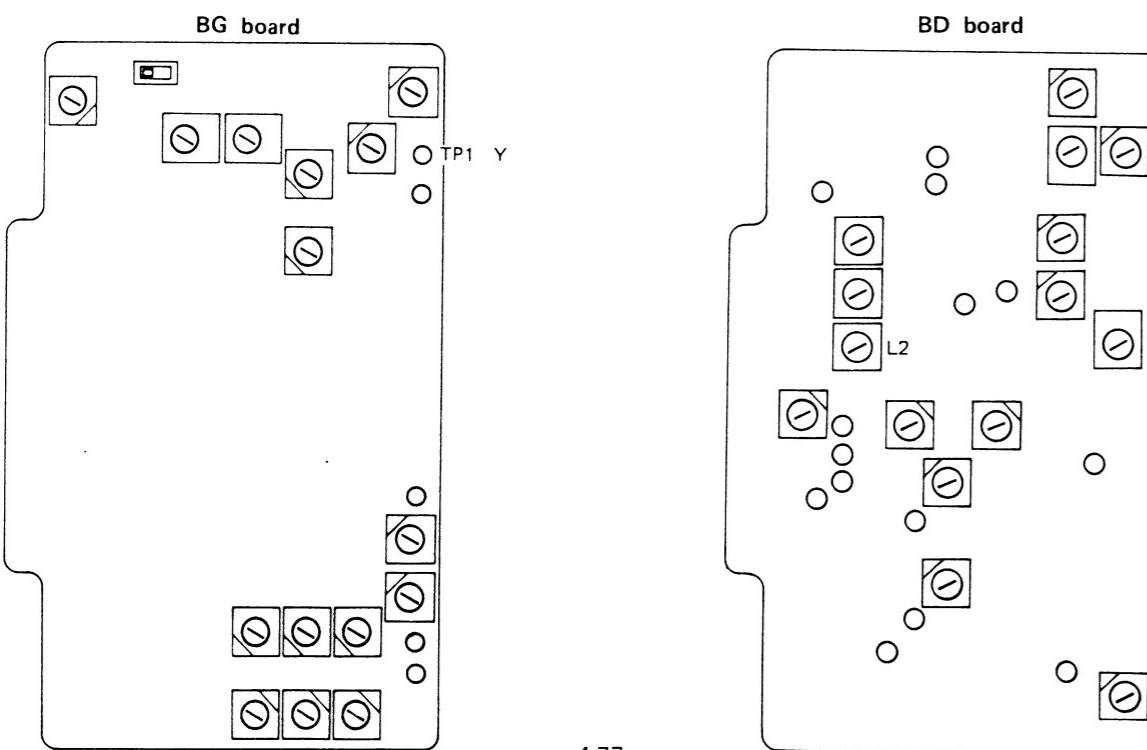
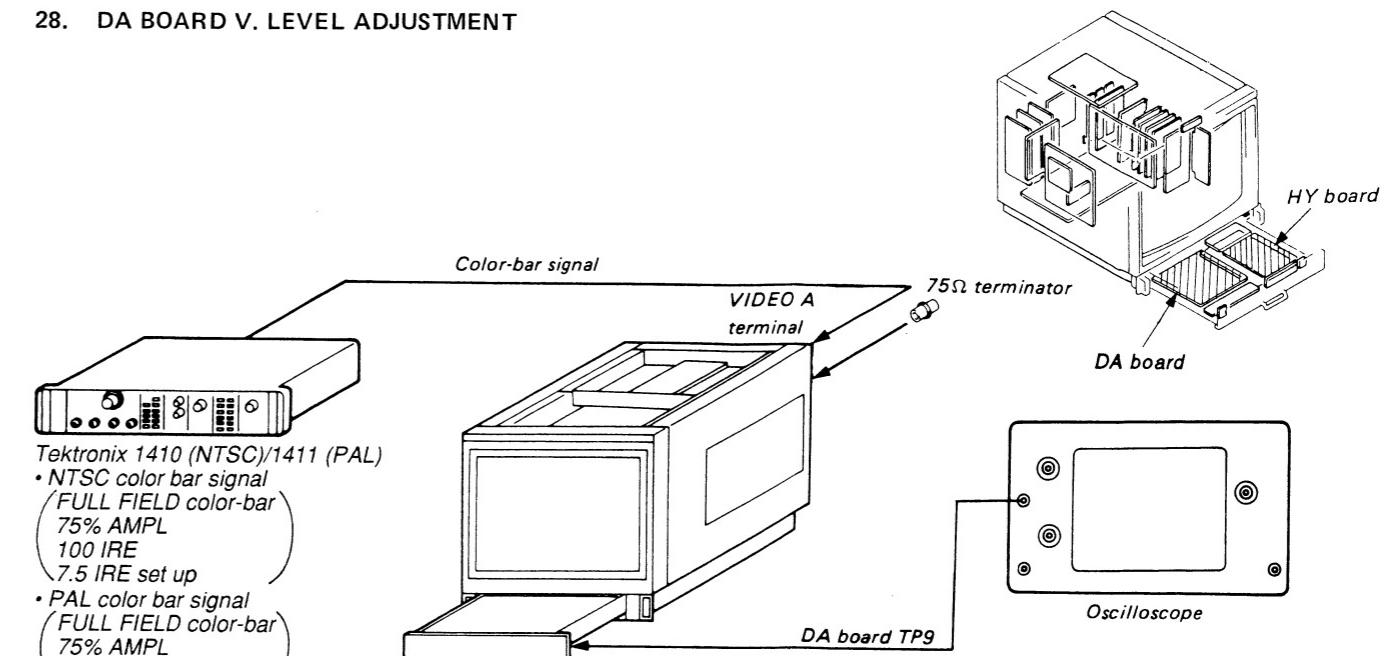


Fig. 27-1



4-77

**28. DA BOARD V. LEVEL ADJUSTMENT**



**PAL**

1. Input color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP9 on the DA board.
3. Adjust RV18 on the DA board so that output waveform is 12.0Vp-p as shown in Fig. 28-1.

The following adjustment is required when a NTSC system signal is received.

**NTSC**

4. Input color-bar signal (TEK-1410) to the VIDEO A terminal of the set.
5. Connect an oscilloscope to the TP9 on the DA board.
6. Adjust RV17 on the DA board so that output waveform is 12.0Vp-p.

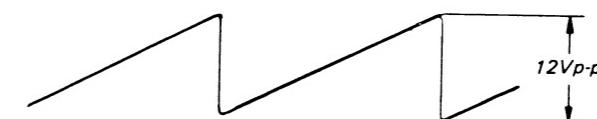
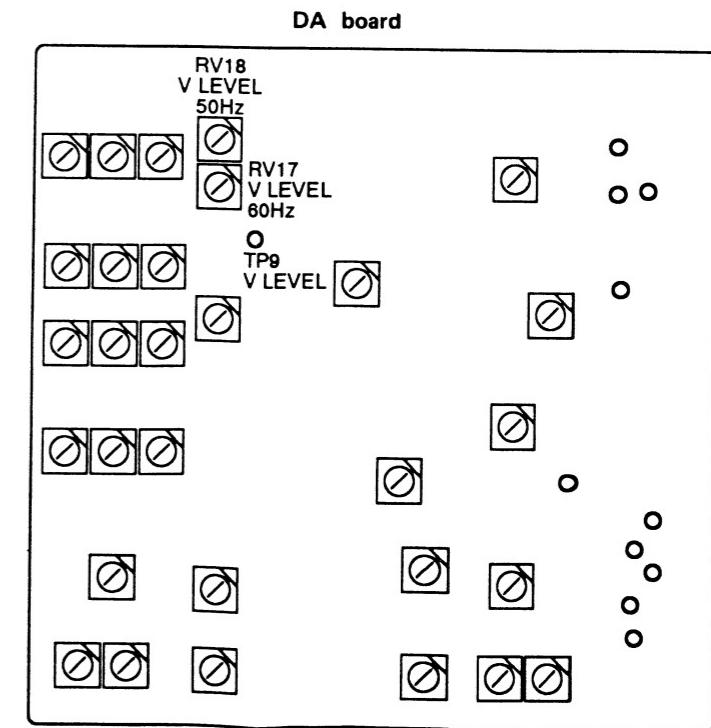


Fig. 28-1

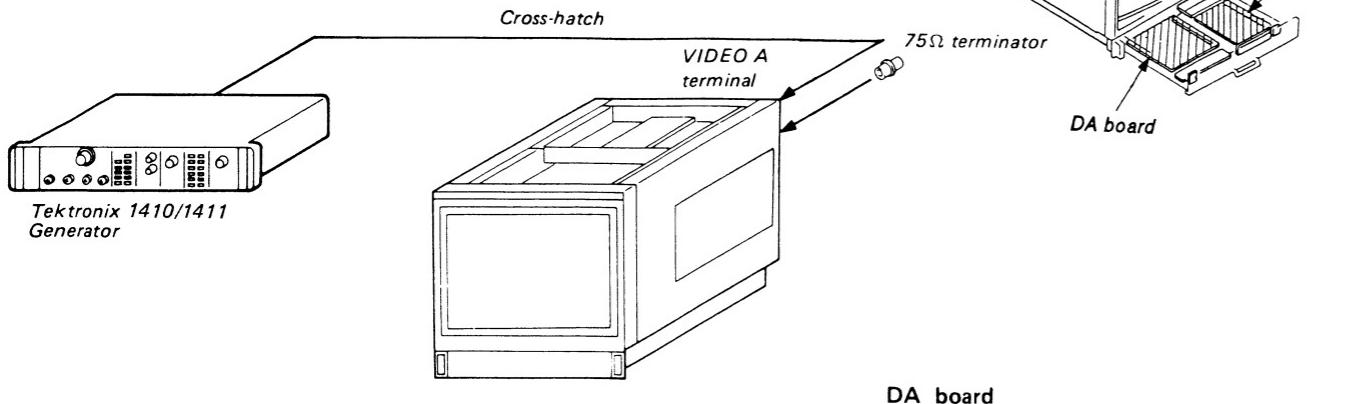


4-78

## 29. DA BOARD LINEARITY ADJUSTMENT

### • Linearity adjustment of 4:3 aspect picture.

ASPECT button ..... 4:3 (HY board)



### TOP AND BOTTOM PIN ADJUSTMENT

1. Receive cross-hatch signal and with H-LINE only.
2. Adjust T&B pin distortion H PHASE by turning DA board RV27 (TRAPEZOID) as shown in Fig. 29-1.
3. Adjust T&B pin distortion gain by turning DA board RV13 as shown in Fig. 29-1.
4. Adjust T&B pin distortion vertical balance by turning DA board RV10 as shown in Fig 29-1.
5. Adjust PARALLELO GRAM distortion by turning DA board RV28 (PARALLEL) as shown in Fig. 29-1.
6. Mark tracking by repeating 2 through 5.
7. UNDER SCAN switch (front panel) ..... UNDER (—)
8. Adjust T&B distortion gain by turning DA board RV14.

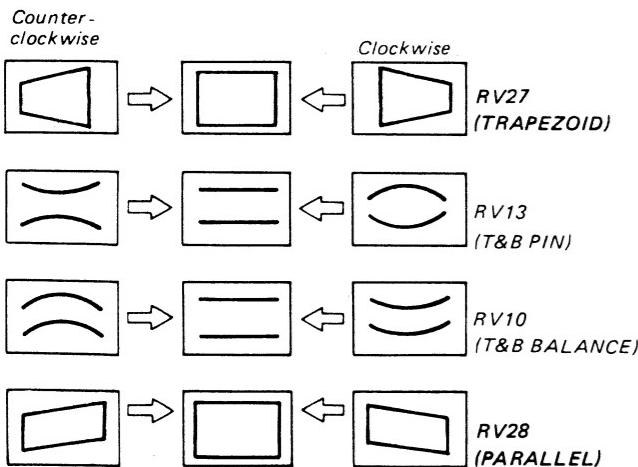
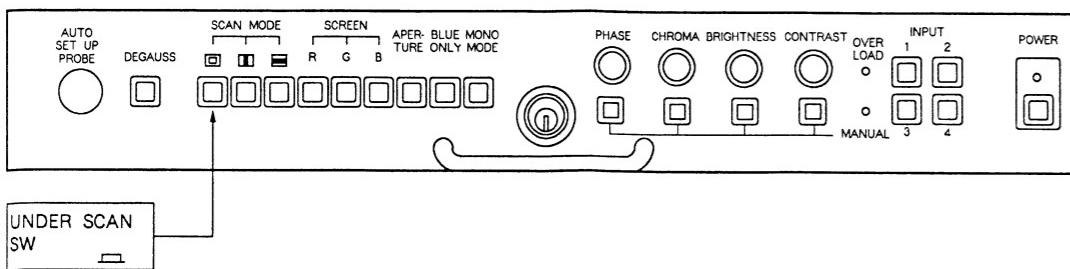


Fig. 22-1

### FRONT PANEL



### V. LINEARITY ADJUSTMENT

1. Receive cross-hatch signal and with H-LINE only.
2. Adjust V. CENTER by turning DA board RV21.
3. Adjust V. LIN BALANCE by turning DA board RV20 as shown in Fig. 29-2.
4. Adjust V. LIN GAIN by turning DA board RV22 as shown in Fig. 29-3.
5. Adjust V. HEIGHT by turning DA board RV23.
6. UNDER SCAN switch (Front panel) ..... UNDE (—)
7. Adjust V. HEIGHT by turning DA board RV24.
8. Mark tracking by repeating steps 2. through 5.

### RV20 ..... V LIN BALANCE

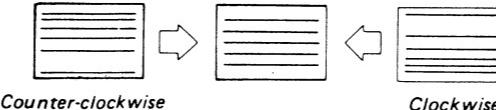


Fig. 29-2

### RV22 ..... V LIN GAIN

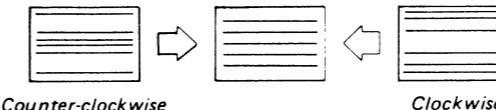


Fig. 29-3

### SIDE PIN ADJUSTMENT

1. Receive cross-hatch signal and with V. LINE only.
2. Adjust SIDE PIN by turning DA board RV15 as shown in Fig. 29-4.
3. Adjust SIDE PIN TILT by turning DA board RV19 as shown in Fig. 29-5.
4. Adjust H. CENTER LINE by turning DA board RV25 as shown in Fig. 29-6.

### RV15 (SIDE PIN)

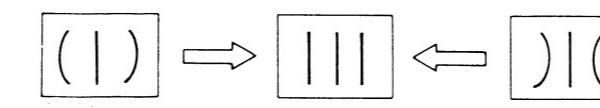


Fig. 29-4

### RV19 (SIDE PIN TILT)



Fig. 29-5

### RV25 (H. CENTER LINE)

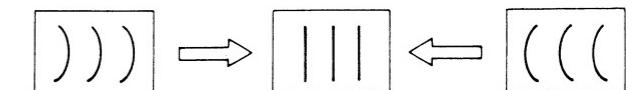


Fig. 29-6

5. UNDER SCAN switch (Front panel (L)) ..... UNDER (—)
6. Adjust SIDE PIN by turning DA board RV16.

### H. LINEARITY ADJUSTMENT

1. Receive cross-hatch signal and with V-LINE only.
2. Adjust H. LINEARITY by turning DA board RV6 (H LIN GAIN) as shown in Fig. 29-1.

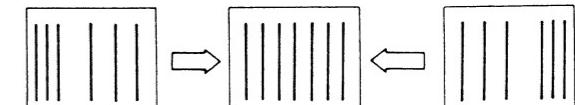
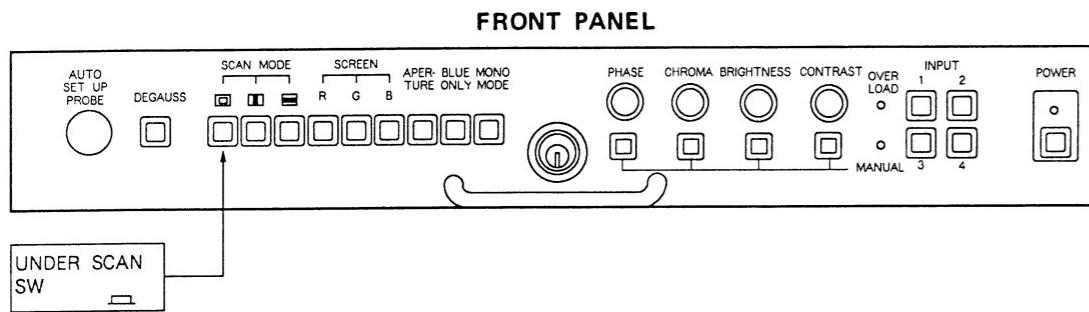
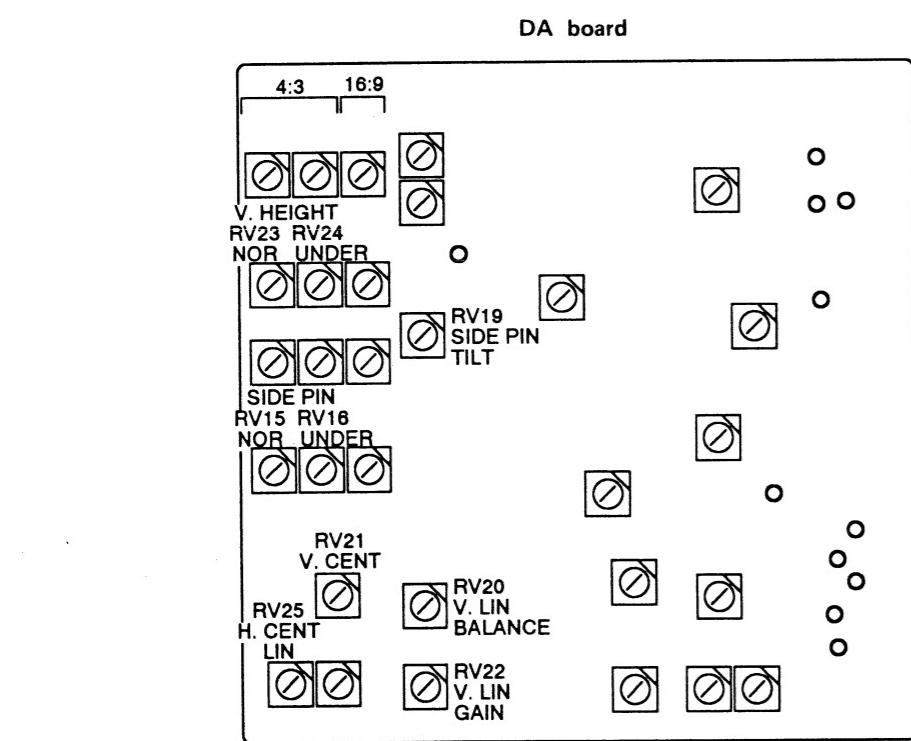


Fig. 29-7



**FRONT PANEL**

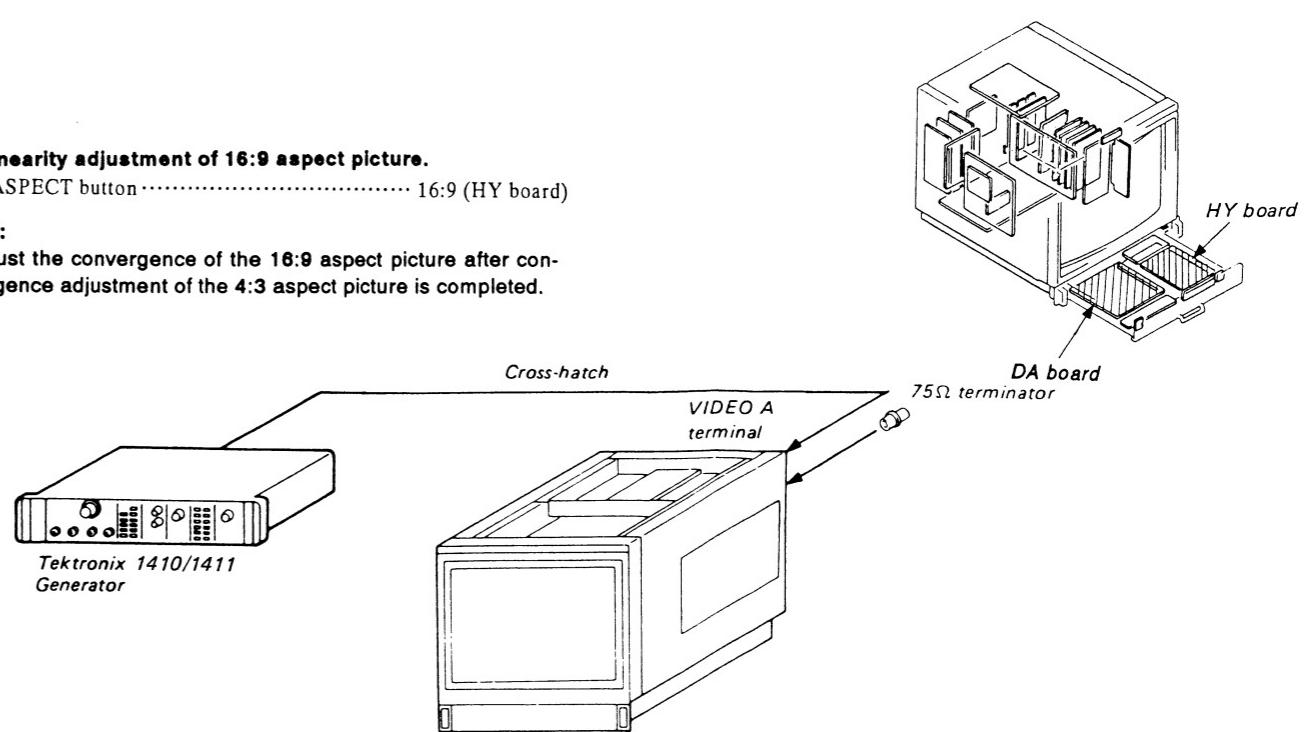


**DA board**

- **Linearity adjustment of 16:9 aspect picture.**  
ASPECT button ..... 16:9 (HY board)

**NOTE:**

- Adjust the convergence of the 16:9 aspect picture after convergence adjustment of the 4:3 aspect picture is completed.



**TOP AND BOTTOM PIN ADJUSTMENT**

1. Receive cross-hatch signal and with H-LINE only.
2. Adjust T&B pin distortion gain by turning DA board RV30 as shown in Fig. 29-8.

*Counter clockwise*

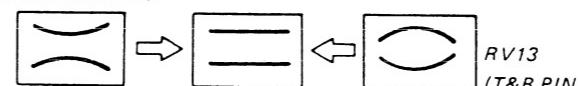


Fig. 29-8

**H. LINEARITY ADJUSTMENT**

1. Receive cross-hatch signal and with V-LINE only.
2. Adjust H. WIDTH by turning DA board RV29 as shown in Fig. 29-11.

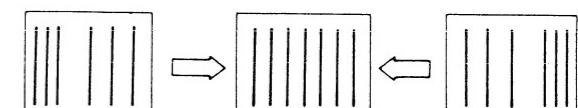


Fig. 29-11

**V. LINEARITY ADJUSTMENT**

1. Receive cross-hatch signal and with H-LINE only.
2. Adjust V. HEIGHT by turning DA board RV32 as shown in Fig. 29-9.

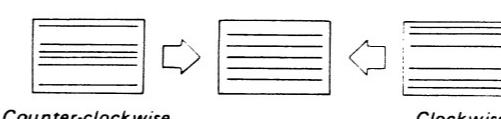


Fig. 29-9

**SIDE PIN ADJUSTMENT**

1. Receive cross-hatch signal and with V. LINE only.
2. Adjust SIDE PIN by turning DA board RV31 as shown in Fig. 29-10.

**RV15 (SIDE PIN)**

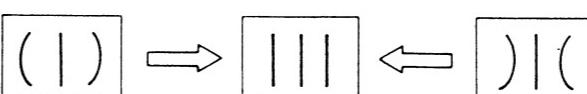
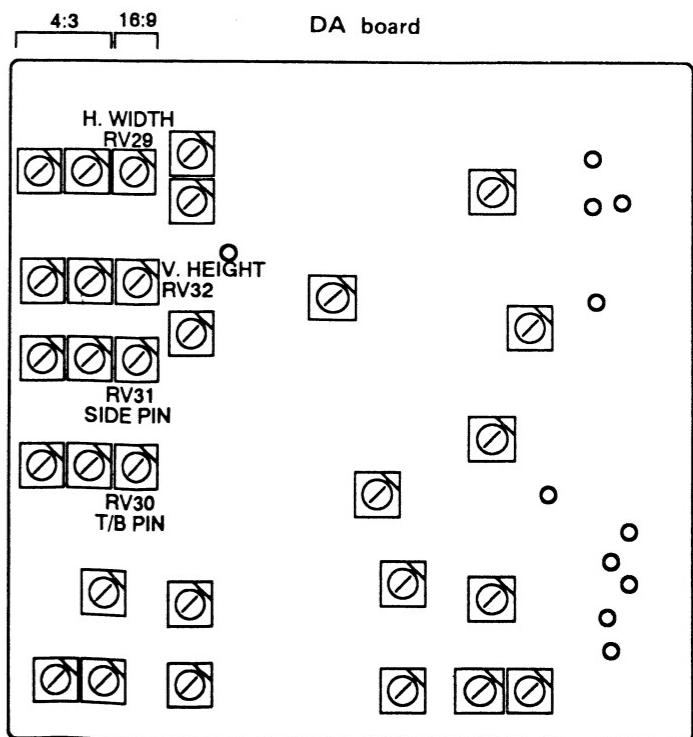
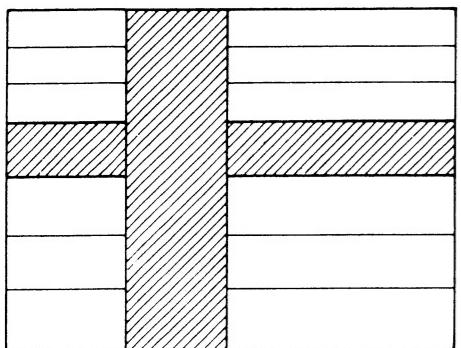


Fig. 29-10



### 30. H. FREQ ADJUSTMENT

1. Receive cross-hatch signal, and SYNC selector to EXT (—).
2. Adjust until the picture stops drifting or moves slowly by turning DA board RV5 as shown in Fig. 30-1.



\* Adjust so that the picture either stops drifting or moves slowly.

Fig. 30-1

#### H. BLK Adjustment

5. Connect an oscilloscope to the TP1 on the DA board.
6. Adjust RV1 on the DA board so that the H. BLK pulse width is  $9.8\mu s$ . Fig. 31-2.

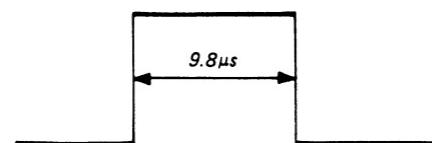
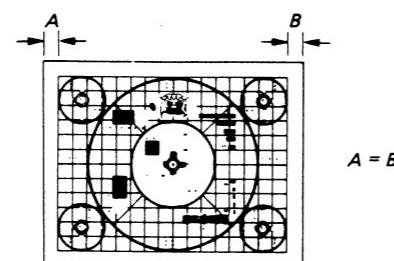


Fig. 31-2

#### H. BLK PHASE Adjustment

7. Adjust RV7 on the DA board so that the blanking width at the right and the left sides are equal to as shown in Fig. 31-3.

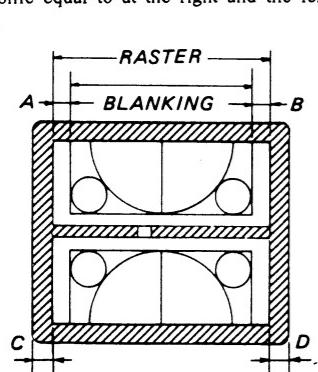


monoscope pattern

Fig. 31-3

#### H. PHASE Adjustment

8. Adjust RV4 on the DA board so that the outside raster portions of the picture become equal at the right and the left sides as shown in Fig. 31-4.



monoscope pattern

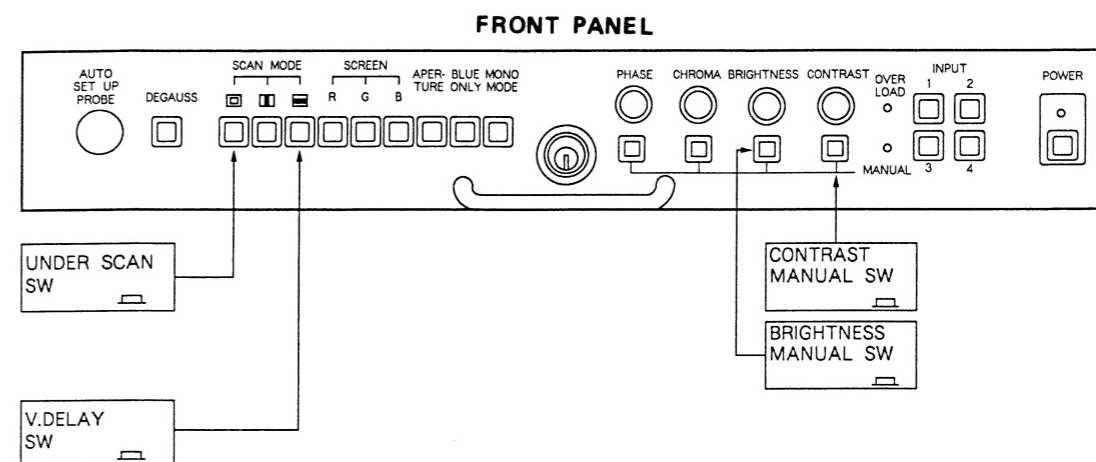
Fig. 31-4

### 31. DA BOARD H. CENTER, BLK, H.PHASE ADJUSTMENT

1. Receive monoscope signal, and UNDER SCAN switch to UNDER (—).
2. Picture tube
  - V. DELAY switch ..... IN (—)
3. Adjust RV1 and RV7 on the DA board so that the raster can all be seen by RV1 and RV7 as shown in Fig. 31-1.

#### H. CENTER

4. Adjust RV26 on the DA board so that the out side portions of the raster become equal to at the right and the left sides as shown in Fig. 31-1.



FRONT PANEL

UNDER SCAN SW

V.DELAY SW

CONTRAST  
MANUAL SW  
BRIGHTNESS  
MANUAL SW

BRIGHTNESS  
MANUAL SW

OVER LOAD

INPUT 1-4

POWER

DEGAUSS

SCAN MODE

SCREEN

APER. BLUE MONO MODE

PHASE

CHROMA

BRIGHTNESS

CONTRAST

MANUAL SW

BRIGHTNESS  
MANUAL SW

OVER LOAD

INPUT 1-4

POWER

AUTO  
SET UP  
PROBE

DEGAUSS

SCAN MODE

SCREEN

APER. BLUE MONO MODE

PHASE

CHROMA

BRIGHTNESS

CONTRAST

MANUAL SW

BRIGHTNESS  
MANUAL SW

OVER LOAD

INPUT 1-4

POWER

DEGAUSS

SCAN MODE

SCREEN

APER. BLUE MONO MODE

PHASE

CHROMA

BRIGHTNESS

CONTRAST

MANUAL SW

BRIGHTNESS  
MANUAL SW

OVER LOAD

INPUT 1-4

POWER

AUTO  
SET UP  
PROBE

DEGAUSS

SCAN MODE

SCREEN

APER. BLUE MONO MODE

PHASE

CHROMA

BRIGHTNESS

CONTRAST

MANUAL SW

BRIGHTNESS  
MANUAL SW

OVER LOAD

INPUT 1-4

POWER

DEGAUSS

SCAN MODE

SCREEN

APER. BLUE MONO MODE

PHASE

CHROMA

BRIGHTNESS

CONTRAST

MANUAL SW

BRIGHTNESS  
MANUAL SW

OVER LOAD

INPUT 1-4

POWER

AUTO  
SET UP  
PROBE

DEGAUSS

SCAN MODE

SCREEN

APER. BLUE MONO MODE

PHASE

CHROMA

BRIGHTNESS

CONTRAST

MANUAL SW

BRIGHTNESS  
MANUAL SW

OVER LOAD

INPUT 1-4

POWER

DEGAUSS

SCAN MODE

SCREEN

APER. BLUE MONO MODE

PHASE

CHROMA

BRIGHTNESS

CONTRAST

MANUAL SW

BRIGHTNESS  
MANUAL SW

OVER LOAD

INPUT 1-4

POWER

AUTO  
SET UP  
PROBE

DEGAUSS

SCAN MODE

SCREEN

APER. BLUE MONO MODE

PHASE

CHROMA

BRIGHTNESS

CONTRAST

MANUAL SW

BRIGHTNESS  
MANUAL SW

OVER LOAD

INPUT 1-4

POWER

DEGAUSS

SCAN MODE

SCREEN

APER. BLUE MONO MODE

PHASE

CHROMA

BRIGHTNESS

CONTRAST

MANUAL SW

BRIGHTNESS  
MANUAL SW

OVER LOAD

INPUT 1-4

POWER

AUTO  
SET UP  
PROBE

DEGAUSS

SCAN MODE

SCREEN

APER. BLUE MONO MODE

PHASE

CHROMA

BRIGHTNESS

CONTRAST

MANUAL SW

BRIGHTNESS  
MANUAL SW

OVER LOAD

INPUT 1-4

POWER

DEGAUSS

SCAN MODE

SCREEN

APER. BLUE MONO MODE

PHASE

CHROMA

BRIGHTNESS

CONTRAST

MANUAL SW

BRIGHTNESS  
MANUAL SW

OVER LOAD

INPUT 1-4

POWER

AUTO  
SET UP  
PROBE

DEGAUSS

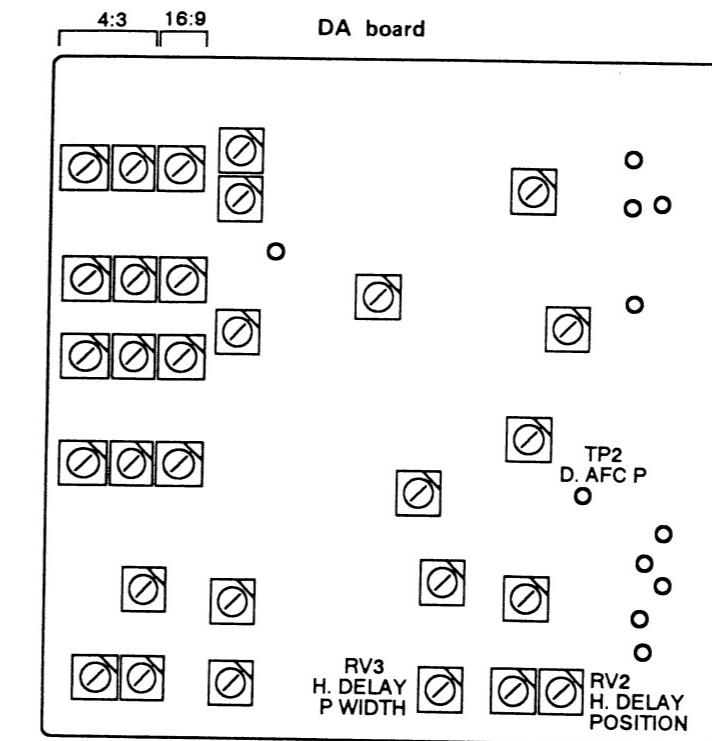
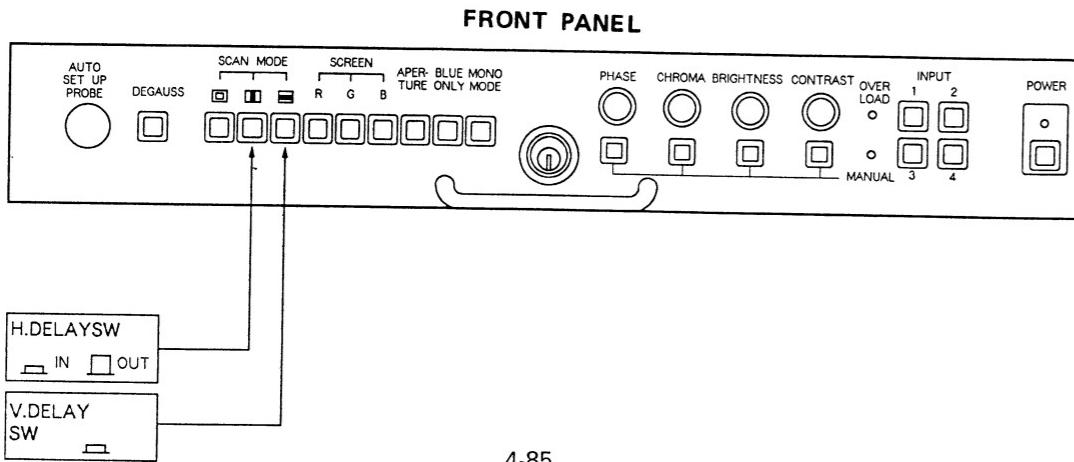
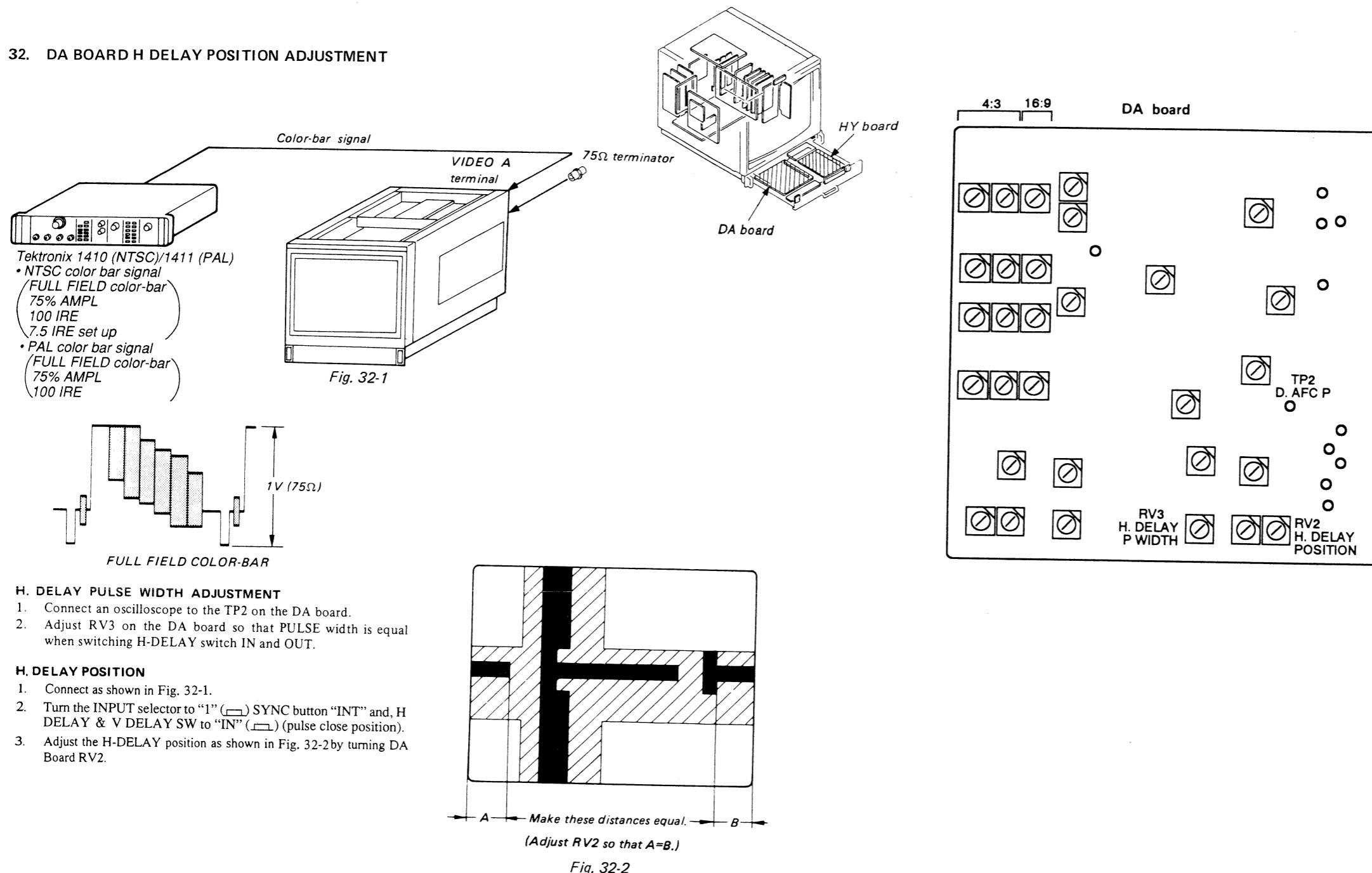
SCAN MODE

SCREEN

APER. BLUE MONO MODE

PHASE

## 32. DA BOARD H DELAY POSITION ADJUSTMENT

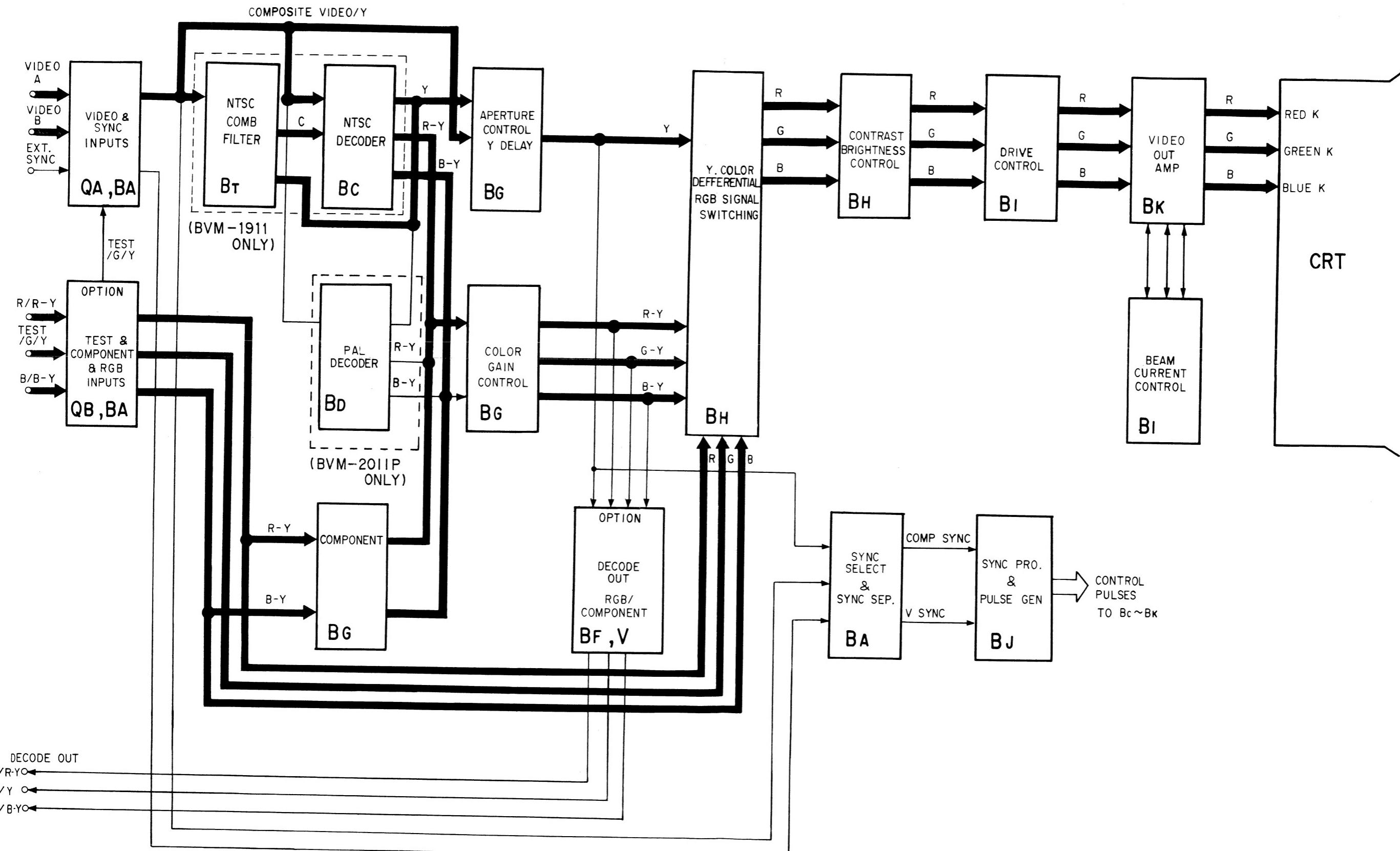




# BLOCK DIAGRAM

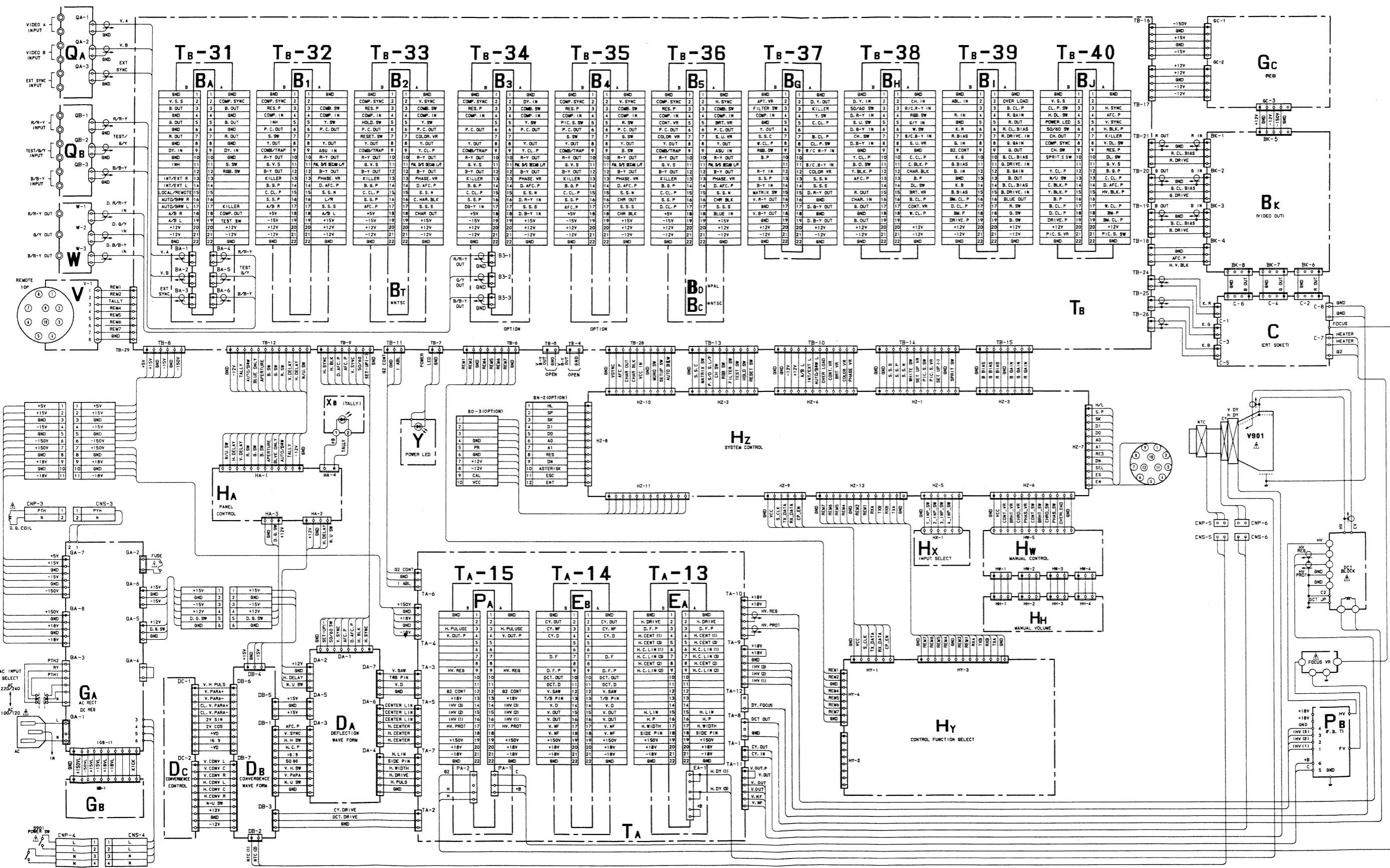
## SECTION 5 DIAGRAMS

### 5-1. BLOCK DIAGRAM SIGNAL PROCESSING BLOCK DIAGRAM



## FRAME FRAME

## 5-2. FRAME WIRING DIAGRAM



### 5-3. MOUNTING AND SCHEMATIC DIAGRAMS

Note:

**Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.**

**Note: Les composants identifiés par une trame et par une marque  sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted. p :  $\mu\mu\text{F}$   
50 WV or less are not indicated except for electrolytics.
- All resistor are in ohms, 1/2W on the C board,  
1/10W on the BT, DC, HY, and HZ boards and 1/4W  
on the rest of the boards unless otherwise specified.  
 $k\Omega = 1000\Omega$ ,  $M\Omega = 1000k\Omega$
-  : nonflammable resistor.
- $\Delta$  : internal component.
- $\pm$  : direct connection to points marked  $\pm$  on the chassis
-  : panel designation.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- The components identified by  in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.  
When replacing components identified by , make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by  and repeat the adjustment until the specified value is achieved.

Refer to R52, R53, R67, R68, R124, R126, R222, R227, R228 and R239.

Adjust on page 4-13 ~ 4-18.

When replacing the part in below table, be sure to perform the related adjustment.

#### Reference information

|            |                         |
|------------|-------------------------|
| RESISTOR : | RN METAL FILM           |
| : RC       | SOLID                   |
| : FPRD     | NONFLAMMABLE CARBON     |
| : FUSE     | NONFLAMMABLE FUSIBLE    |
| : RS       | NONFLAMMABLE WIREWOUND  |
| : RB       | NONFLAMMABLE CEMENT     |
| COIL :     | LF-8L MICRO INDUCTOR    |
| CAPACITOR: | TA TANTALUM             |
| : PS       | STYROL                  |
| : PP       | POLYPROPYLENE           |
| : PT       | MYLAR                   |
| : MPS      | METALIZED POLYESTER     |
| : MPP      | METALIZED POLYPROPYLENE |
| : ALB      | BIPOLAR                 |
| : ALT      | HIGH TEMPERATURE        |
| : AIR      | HIGH RIPPLE             |

| Part replaced (  )                                     | Adjustment (  ) |
|---|--|
| C59, IC3, R67, R68, R78, RV2 ... (GA board)   | B+ MAX<br>(R67, R68) Page 4-13.  |
| Q13, Q14, R52, R53<br>(GA board)<br>D5, D6, D7, D8, Q3, Q4, Q5, R4, R5, R19, R20, R21, R22 ... (GB board)                               | B+ PROTECTOR<br>(R52, R53)<br>Page 4-13.   |
| D216, IC1, IC4, R123, R124, R125, R126, R136, R137, R138, R203, R204, RV1 ... (PA board)<br>DCT BLOCK                                   | HV REG<br>(R124, R126)<br>Page 4-18.   |
| D205, D207, D214, D215<br>IC2, R201, R202, R213, R214, R225, R226, R227, R228, R229, R230, R243, R245 ...<br>(PA board) DCT BLOCK       | HV HOLD DOWN<br>(R227, R228)<br>Page 4-16.   |
| D205, D206, D215, IC2, R201, R202, R213, R214, R220, R221, R222, R223, R224, R242 ... (PA board)<br>T1 (FBT), R1, R2, R5 ... (PB board) | BEAM CURRENT<br>PROTECTOR-1<br>(R222)<br>Page 4-13 ~ 4-16  |
| D204, D216, IC3, R203, R204, R231, R232, R237, R238, R239, R240, R241, R247 ... (PA board)<br>T1 (FBT), R3, R4, R5, R6 ... (PB board)   | BEAM CURRENT<br>PROTECTOR-2<br>(R239)<br>Page 4-14 ~ 4-15  |

-  adjustment for repair.
- B+ bus
- B- bus.
- Circled numbers are waveform references.
- Waveforms are taken with a color-bar signal input and with a  $75\Omega$  terminator connected to an open terminal.

- Switches and controls are set as follows unless otherwise noted.

#### FRONT PANEL

- INPUT selector ..... 1 HX board
- CONTRAST MANUAL switch .... PRESET HW board
- BRIGHTNESS MANUAL switch ... PRESET
- CHROMA MANUAL switch ..... PRESET
- PHASE MANUAL switch ..... PRASET
- SCAN MODE switch
  -  UNDER SCAN ..... NOR
  -  H. DELAY ..... NOR
  -  V. DELAY ..... NOR
- SCREEN switch (R) ..... NOR HA board
- SCREEN switch (G) ..... NOR
- SCREEN switch (B) ..... NOR
- APT switch ..... NOR
- BLUE ONLYswitch ..... NOR
- MODE selector ..... AUTO

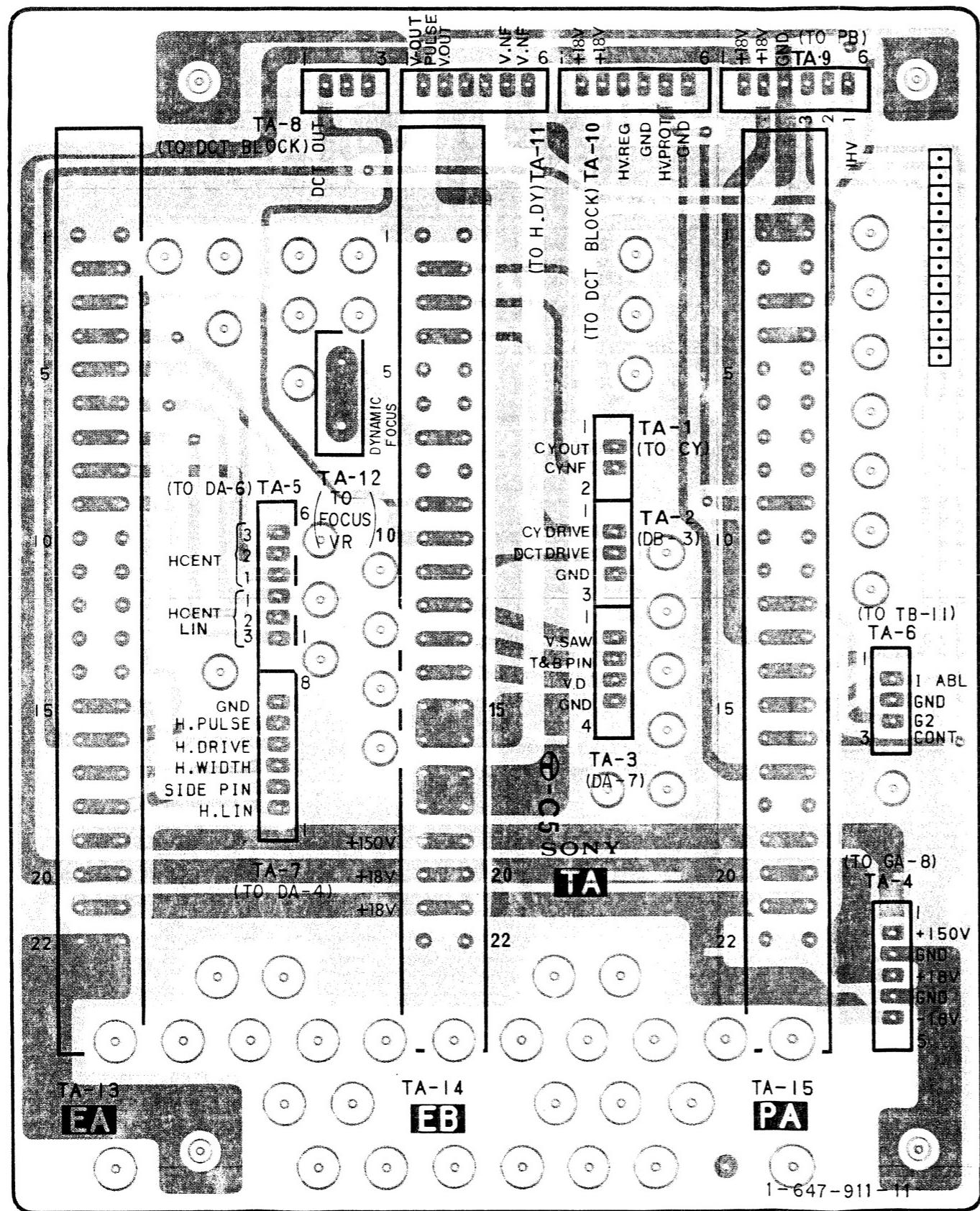
#### SUB CONTROL PANEL

- FORMAT button ..... CODED
- INPUT button ..... A
- SYNC button ..... INT
- COLOR SYSTEM button ..... NTSC (BVM-1311/1911)  
PAL (BVM-1411P/2011P)
- YC SEP button ..... COMB (BVM-1311/1911)  
TRAP (BVM-1411P/2011P)
- WHITE BALANCE button ..... D65/D93 HY board
- ASPECT button ..... 4 : 3
- PIC SETUP button ..... OFF
- SAD/VITC/MARKERbutton ..... OFF
- FILTER button ..... OFF
- MATRIX button ..... OFF
- PAL S/SECAM F/COMB S button ..... OFF
- CROSS HATCH button ..... OFF
- SPLIT SCREEN button ..... OFF
- WHITE button ..... OFF
- GRAY button ..... OFF
- AFC switch ..... 2m sec DA board

#### Note:

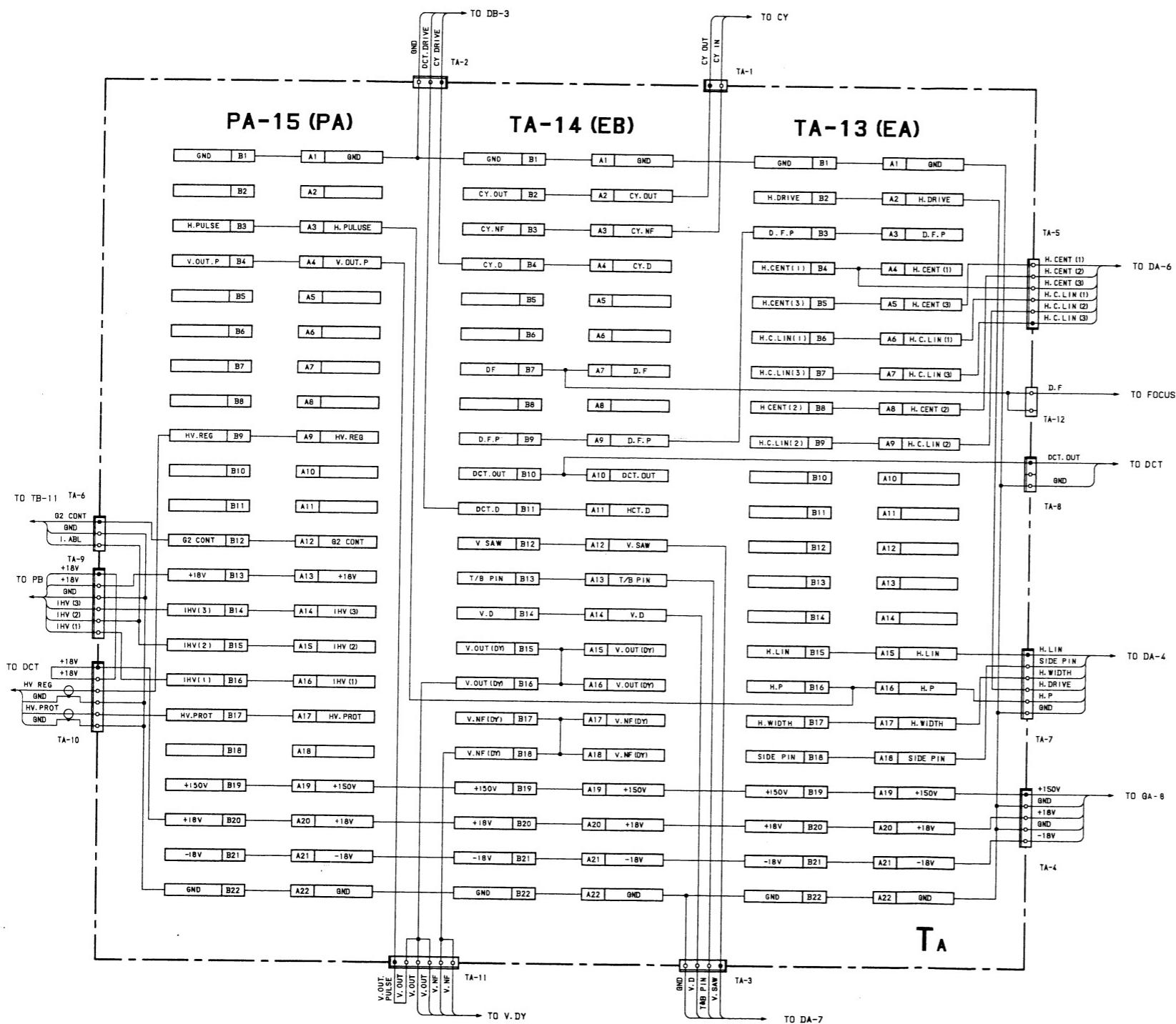
-  : Pattern from the side which enables seeing.
-  : Pattern of the rear side.

TA board (MOTHER BOARD)

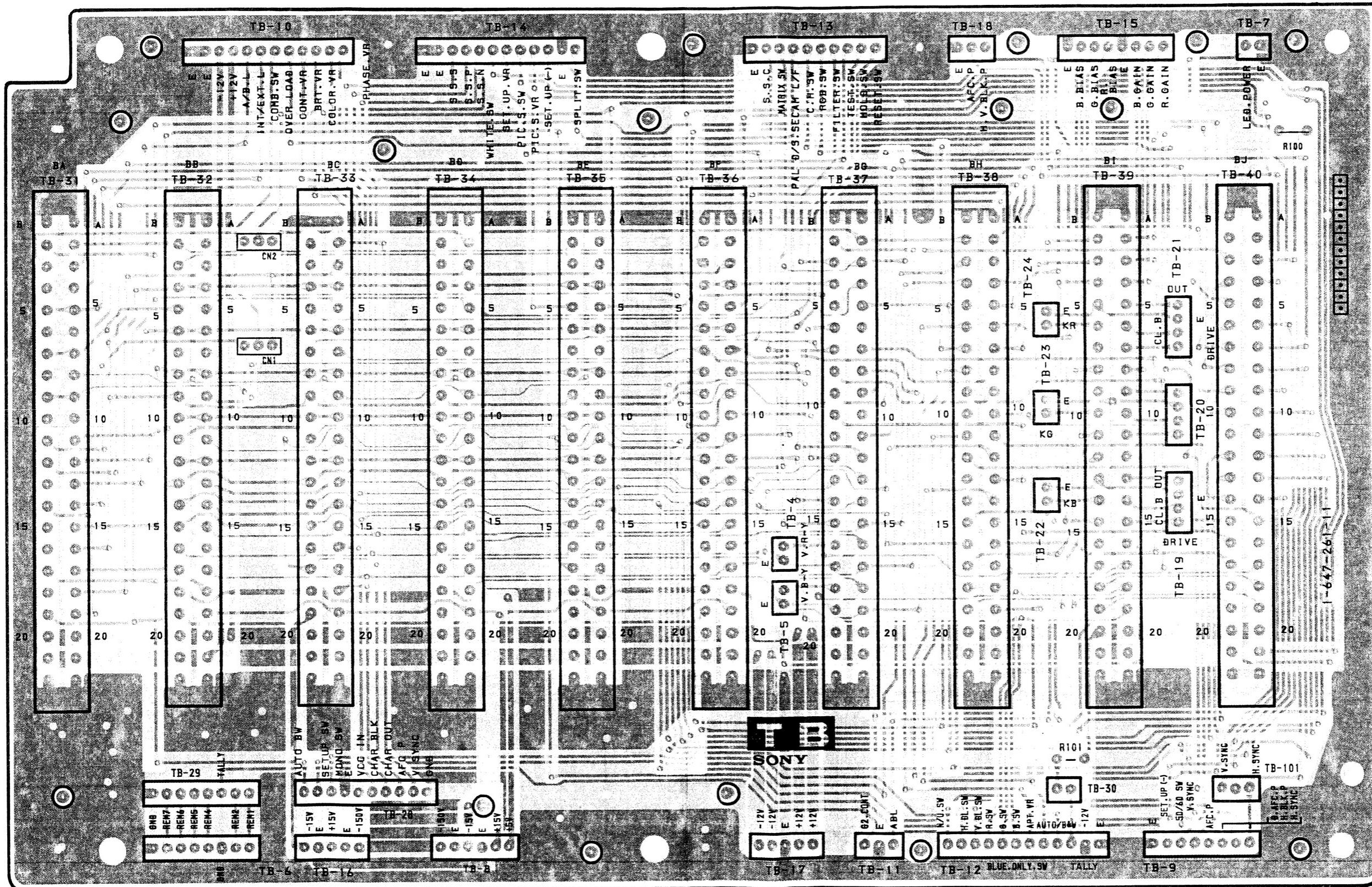


- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

TA board (MOTHER BOARD)



TB board (MOTHER BOARD)

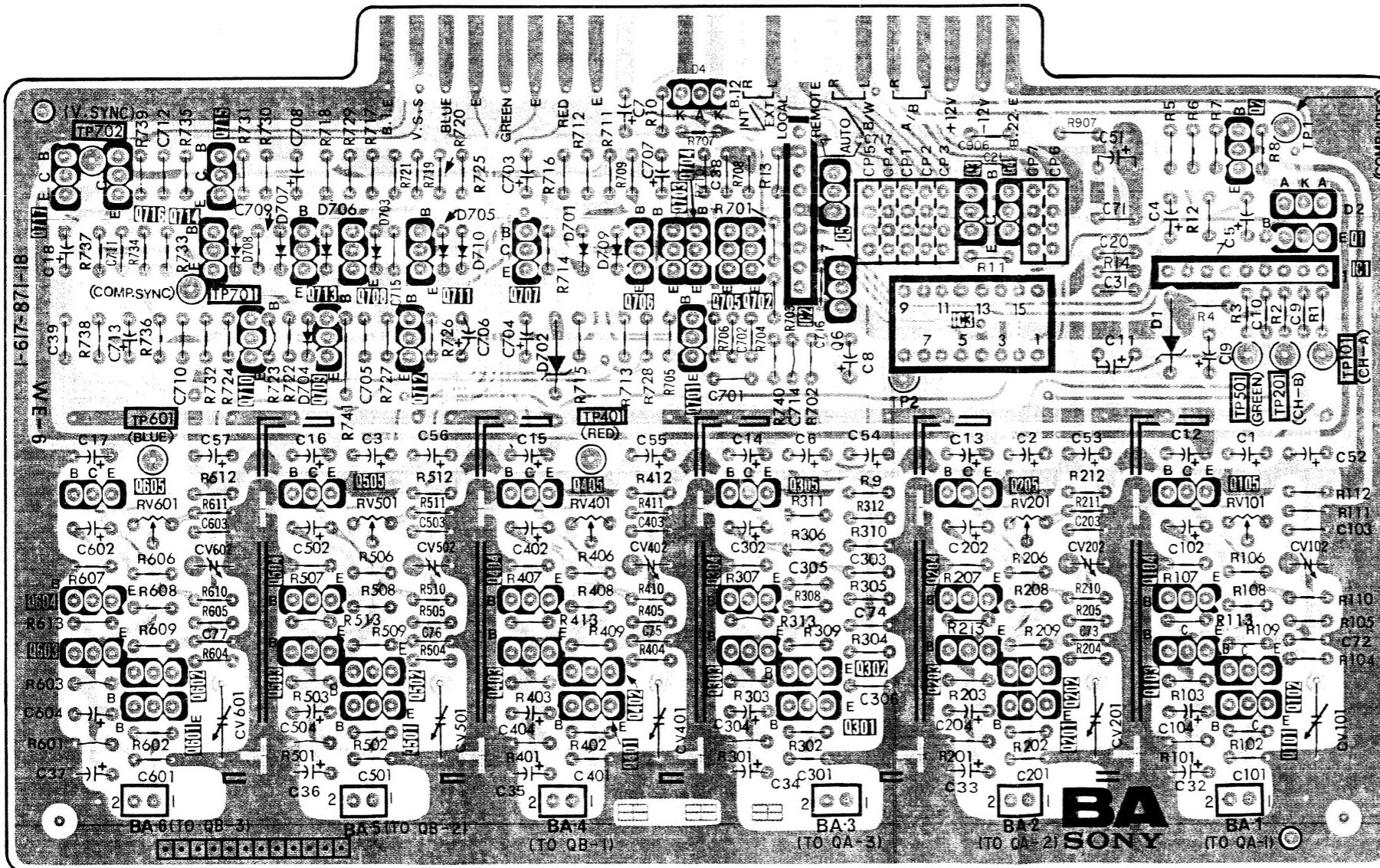


## TB board (MOTHER BOARD)



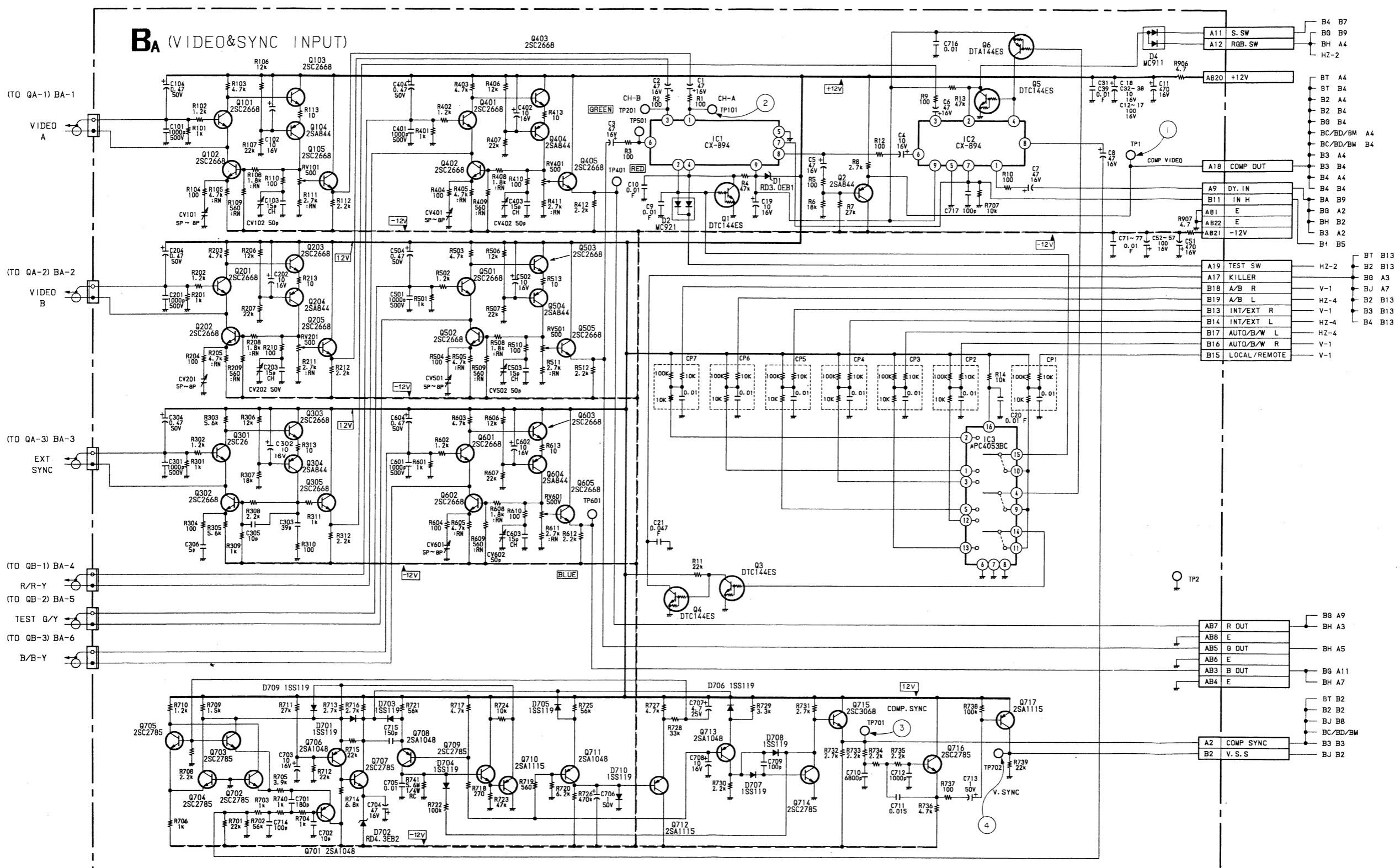
BA board (SYNC SELECT &amp; SYNC SEP, HOOK UP)

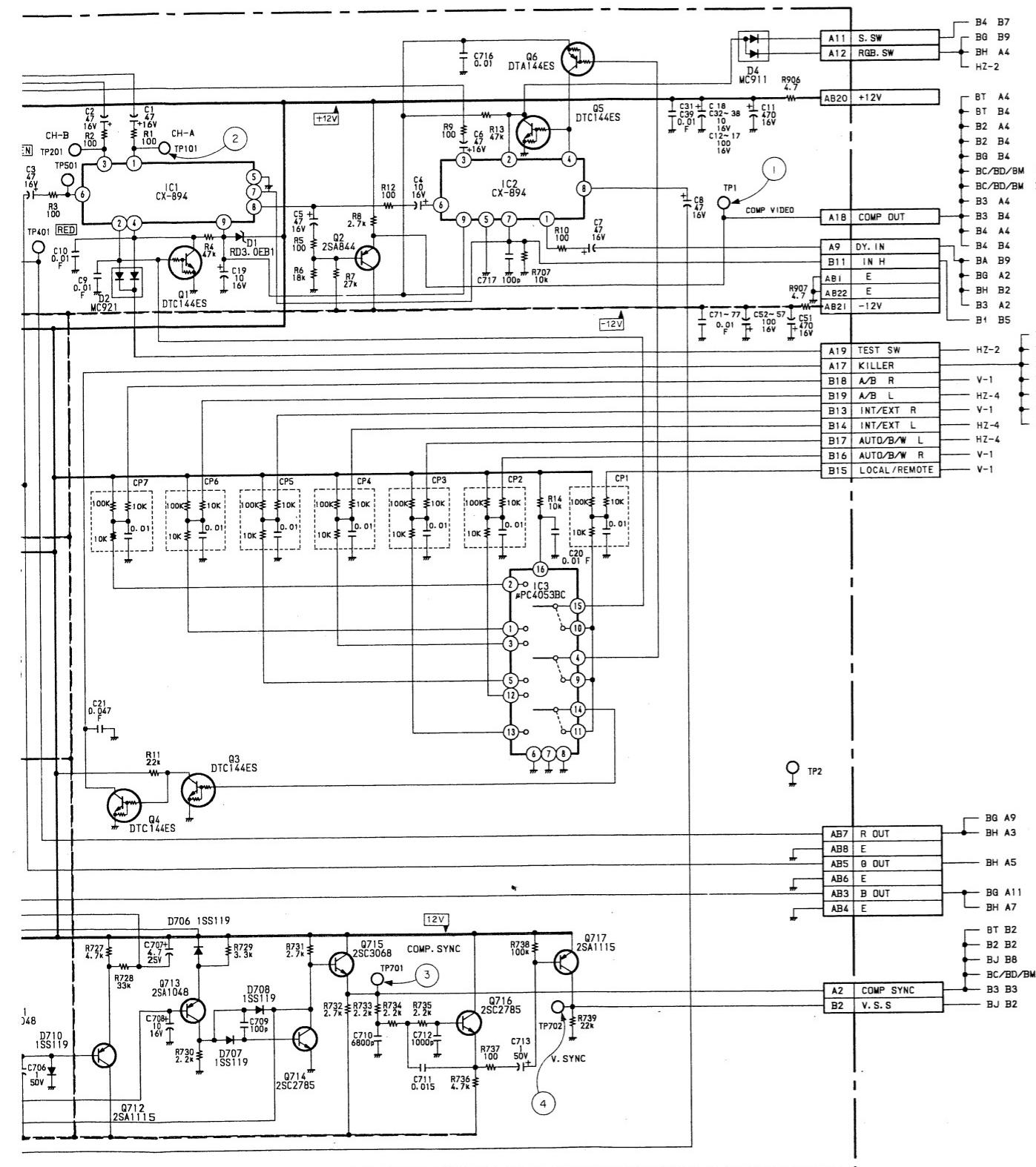
| IC        | 2   |                                  |   |  |                                      |  |  |                                  |                                 |                                 |                                 |                                 | 3 |   |   |   | 1 |  |  |  |
|-----------|---|----------------------------------|---|--|--------------------------------------|--|--|----------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---|---|---|---|---|--|--|--|
| Q         | 717 716<br>715<br>714<br>710<br>605<br>604<br>603<br>602<br>601 | 713<br>709<br>503<br>502<br>501  | 708<br>712<br>405<br>404<br>403<br>402<br>401 | 711<br>707<br>405<br>305<br>304<br>303<br>302<br>301 | 704<br>706<br>705<br>702<br>701<br>5 | 703<br>705<br>702<br>303<br>302<br>301 | 709<br>710<br>708<br>707<br>706<br>705<br>704<br>702 | 101<br>709<br>4                  | 205<br>204<br>203<br>202<br>201 | 205<br>204<br>203<br>202<br>201 | 105<br>104<br>103<br>102<br>101 | 105<br>104<br>103<br>102<br>101 | 2 | 1 | 2 | 1 | 1 |  |  |  |
| D         | 708<br>707<br>706<br>703<br>705<br>710<br>704                   | 101<br>709<br>702                | 4   |  |                                      |  |  |                                  |                                 |                                 |                                 |                                 | 2 |   |   |   |   |  |  |  |
| TP<br>ADJ | TP702<br>TP60I<br>RV60I<br>CV602<br>CV60I                       | TP701<br>RV50I<br>CV502<br>CV50I | TR40I<br>RV40I<br>CV402<br>CV40I              |  | TP2<br>RV20I<br>CV202<br>CV20I       |  |  | TP50I<br>RV10I<br>CV102<br>CV10I | TP1<br>TP20I<br>TP10I           |                                 |                                 |                                 |   |   |   |   |   |  |  |  |



- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

BA board (SYNC SELECT &amp; SYNC SEP, HOOK UP)



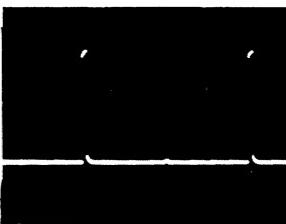
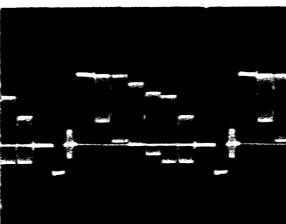
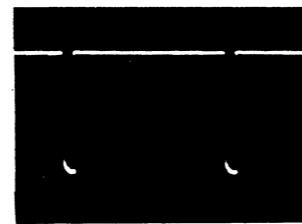


BA BOARD

|          |              |                      |
|----------|--------------|----------------------|
| IC1      | CX894        | INPUT SELECT         |
| 2        | CX894        | SYNC SELECT          |
| 3        | MC14053BCP   | LOCAL/REMOTE SW      |
|          |              |                      |
| Q1       | DTC144ES     | INPUT SELECT CONTROL |
| 2        | ZSA844       | BUFF                 |
| 3        | DTC144ES     | KILLER               |
| 4        | DTC144ES     | KILLER               |
| 5        | DTC144ES     | SYNC SELECT CONTROL  |
| 6        | DTA144ES     | INT/EXT CONTROL      |
| 101      | 2SC2668      | VIDEO A AMP          |
| 102      | 2SC2668      | VIDEO A AMP          |
| 103      | 2SC2668      | VIDEO A AMP          |
| 104      | ZSA844       | VIDEO A AMP          |
| 105      | 2SC2668      | VIDEO A AMP          |
| 201      | 2SC2668      | VIDEO B AMP          |
| 202      | 2SC2668      | VIDEO B AMP          |
| 203      | 2SC2668      | VIDEO B AMP          |
| 204      | ZSA844       | VIDEO B AMP          |
| 205      | 2SC2668      | VIDEO B AMP          |
| 301      | 2SC2668      | EXT SYNC AMP         |
| A17      | KILLER       |                      |
| B18      | A/B R        |                      |
| B19      | A/B L        |                      |
| B13      | INT/EXT R    |                      |
| B14      | INT/EXT L    |                      |
| B17      | AUTO/B/W L   |                      |
| B16      | AUTO/B/W R   |                      |
| B15      | LOCAL/REMOTE |                      |
| A19      | TEST SW      | HZ-2                 |
| B2       | B13          |                      |
| B8       | A3           |                      |
| B1       | BJ A7        |                      |
| B2       | B13          |                      |
| B3       | B13          |                      |
| B4       | B13          |                      |
|          |              |                      |
| TP2      |              |                      |
| AB7      | R OUT        | BH A3                |
| AB8      | E            |                      |
| AB5      | G OUT        | BH A5                |
| AB6      | E            |                      |
| AB3      | B OUT        | BH A11               |
| AB4      | E            | BH A7                |
|          |              |                      |
| BT B2    |              |                      |
| B2 B2    |              |                      |
| BJ B8    |              |                      |
| BC/BD/BM |              |                      |
| B3 B3    |              |                      |
| BJ B2    |              |                      |

|      |           |                      |
|------|-----------|----------------------|
| Q603 | 2SC2668   | B-Y/B AMP            |
| 604  | 2SA844    | B-Y/B AMP            |
| 605  | 2SC2668   | B-Y/B AMP            |
| 701  | 2SA1048   | SYNC AGC             |
| 702  | 2SC2785   | SYNC AGC             |
| 703  | 2SC2785   | SYNC AGC             |
| 704  | 2SC2785   | SYNC AGC             |
| 705  | 2SC2785   | SYNC AGC             |
| 706  | 2SA1048   | SYNC AGC             |
| 707  | 2SC2785   | SYNC AGC             |
| 708  | 2SA1048   | SYNC AGC             |
| 709  | 2SC2785   | SYNC AGC             |
| 710  | 2SA1115   | SYNC AGC             |
| 711  | 2SA1048   | SYNC AGC             |
| 712  | 2SA1115   | SYNC AGC             |
| 713  | 2SA1048   | COMP SYNC SEP        |
| 714  | 2SC2785   | COMP SYNC SEP        |
| 715  | 2SC3068   | COMP SYNC SEP        |
| 716  | 2SC2785   | V SYNC SEP           |
| 717  | 2SA1115   | V SYNC SEP           |
| D1   | RD3.0E-B1 | +9V REG              |
| 2    | MC921     | INPUT SELECT CONTROL |
| 4    | MC911     | SYNC SELECT CONTROL  |
| 701  | ISS119    | SYNC AGC             |
| 702  | RD4.3E-B2 | -7.5V REG            |
| 703  | ISS119    | SYNC AGC             |
| 704  | ISS119    | SYNC AGC             |
| 705  | ISS119    | SYNC AGC             |
| 706  | ISS119    | SYNC AGC             |
| 707  | ISS119    | COMP SYNC SEP        |
| 708  | ISS119    | COMP SYNC SEP        |
| 709  | ISS119    | SYNC AGC             |
| 710  | ISS119    | SYNC AGC             |

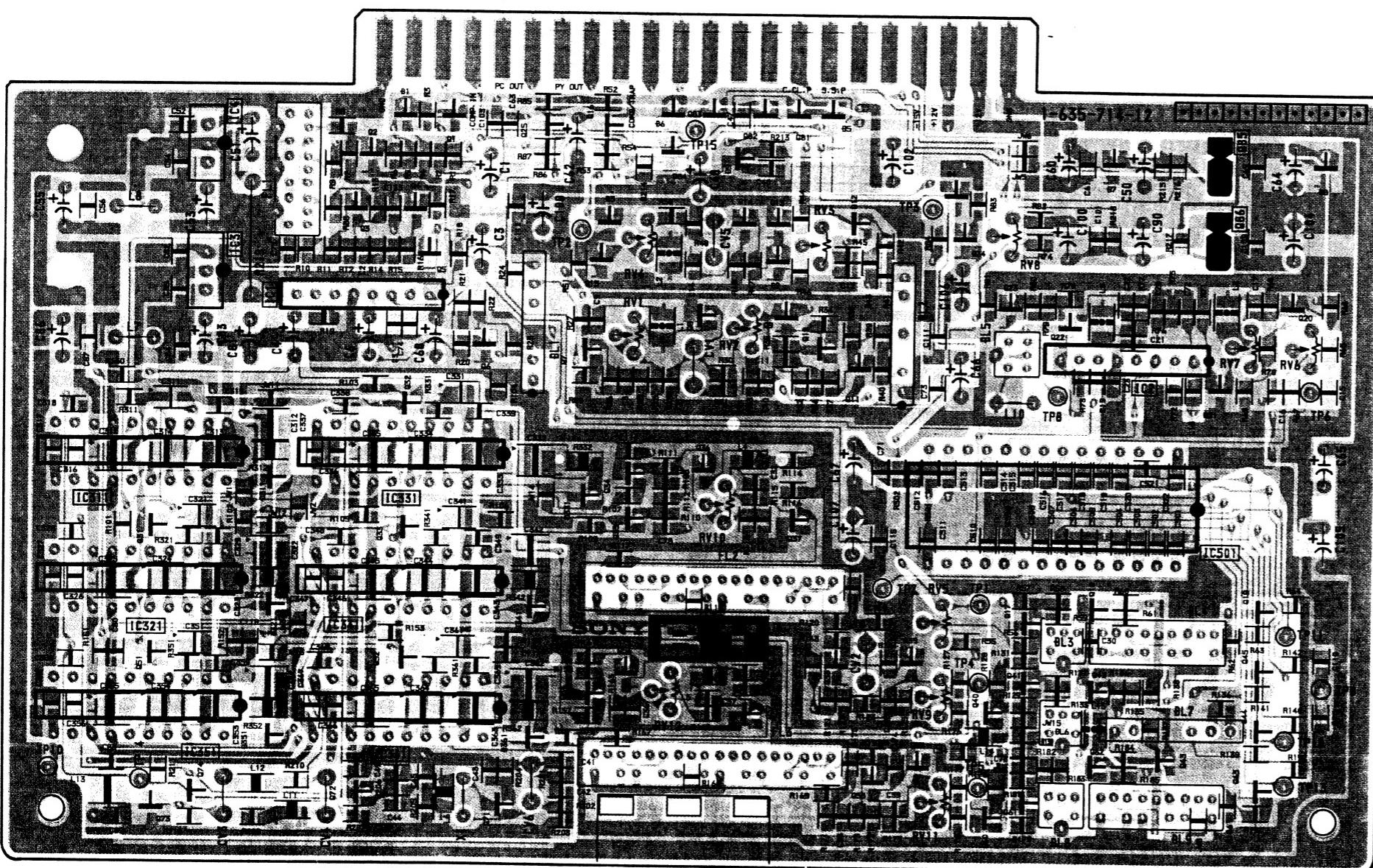
5. DIAGRAMS

(1) 1Vp-p (H)  
(2) 1Vp-p (H)

(3) 12Vp-p (H)

BT board (3 LINE DYNAMIC COMB FILTER, 2 LINE SIMPLE COMB FILTER, BPF)  
(BVM-1911 ONLY)

|     |                   |                   |     |   |                            |                    |  |
|-----|-------------------|-------------------|-----|---|----------------------------|--------------------|--|
| IC  | 311<br>321<br>351 | 4<br>3<br>351     | I   | 331<br>341<br>361                       |                            | 2                  | 501                                    |
|     |                   |                   | 2   | 1                                       | 25 16 84 83 82 81          |                    | 85                                     |
|     |                   |                   | 3 4 | 5                                       | 8 14 13 12 24 23 22 18     | 21                 | 86 20                                  |
| Q   | 31<br>51          | 32<br>33<br>52    | 6   | 7 15 34<br>35 36 9 10 37 38 39 40 41 42 | 56 54                      | 17 45<br>44        | 19                                     |
|     | 73 74             | 72                | 71  | 57                                      | 58                         | 60 61              | 62 43 65                               |
| D   | 311<br>321<br>351 | 311<br>321<br>351 | I   | 341<br>361                              | 3 6 9 2 5 4                | 7                  | 8                                      |
| ADJ | CV3               | CV4               | CV6 | RV4<br>RVI<br>CV6                       | CV5<br>RV12<br>CVI<br>RV10 | RV2<br>CV2<br>RVII | RV3<br>RV9<br>RV5<br>RV8<br>RV7<br>RV6 |
| TP  | 10                | 14                |     | 2                                       | 15                         | 3 4 1 8            | 11 6 9<br>13 12                        |

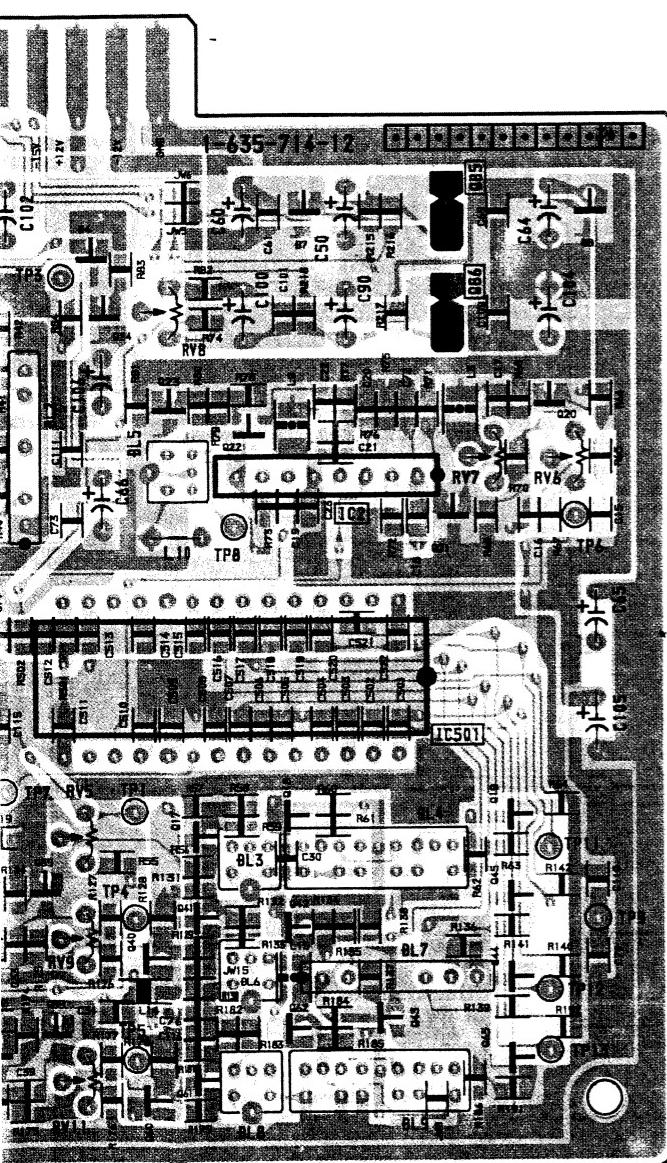


|      |           |                                  |
|------|-----------|----------------------------------|
| IC 1 | LA7816    | Y SELECT                         |
| 2    | LA7816    | C SELECT                         |
| 3    | NJM7809FA | 9V REG                           |
| 4    | NJM7805FA | 5V REG                           |
| 331  | CXL1009P  | CCD                              |
| 341  | CXL1009P  | CCD                              |
| 361  | CXL1009P  | CCD                              |
| 501  | CXA1539P  | CORRELATION                      |
| 0 1  | 2SA812    | BUFFER                           |
| 2    | 2SC1623   | BUFFER                           |
| 3    | 2SA1226   | AMP                              |
| 4    | 2SC2757   | AMP                              |
| 5    | 2SC1623   | AMP                              |
| 6    | 2SC1623   | Y DELAY                          |
| 7    | 2SA1226   | Y DELAY                          |
| 8    | 2SA812    | Y DELAY                          |
| 9    | 2SA1226   | Y/C MIX                          |
| 10   | 2SC2757   | Y/C MIX                          |
| 11   | 2SC1623   | Y AMP & BUFFER                   |
| 12   | 2SA1226   | Y AMP & BUFFER                   |
| 13   | 2SC2757   | Y AMP & BUFFER                   |
| 14   | 2SC2757   | Y DELAY                          |
| 15   | 2SA812    | Y DELAY                          |
| 16   | 2SC3624A  | BUFFER & SW                      |
| 17   | 2SC1623   | BPF 140 nsec(NTSC) 110 nsec(PAL) |
| 18   | 2SA812    | BPF 140 nsec(NTSC) 110 nsec(PAL) |
| 19   | 2SC1623   | BPF 140 nsec(NTSC) 110 nsec(PAL) |
| 20   | 2SC2757   | S COMB C LEVEL, PHASE            |
| 21   | 2SC1623   | S COMB C LEVEL, PHASE            |
| 22   | 2SC1623   | BPF, BUFFER                      |
| 23   | 2SC1623   | BPF, BUFFER                      |
| 24   | 2SA812    | BPF, BUFFER                      |
| 25   | 2SC3624A  | BUFFER & SW                      |
| 32   | 2SC1623   | 1H DELAY(NTSC) 2H DELAY(PAL)     |
| 33   | 2SC1623   | 1H DELAY(NTSC) 2H DELAY(PAL)     |
| 34   | 2SA812    | 1H DELAY(NTSC) 2H DELAY(PAL)     |
| 35   | 2SA812    | 1H DELAY(NTSC) 2H DELAY(PAL)     |
| 36   | 2SA1226   | 1H DELAY(NTSC) 2H DELAY(PAL)     |
| 37   | 2SC1623   | AMP                              |
| 38   | 2SA1226   | AMP                              |
| 39   | 2SC2757   | AMP                              |
| 40   | 2SC1623   | AMP                              |
| 41   | 2SC1623   | BPF 140 ns DELAY(NTSC) 110 ns D  |
| 42   | 2SA812    | BPF 140 ns DELAY(NTSC) 110 ns D  |
| 43   | 2SC1623   | BPF 140 ns DELAY(NTSC) 110 ns D  |
| 44   | 2SC1623   | BPF 140 ns DELAY(NTSC) 110 ns D  |
| 45   | 2SC1623   | BPF 140 ns DELAY(NTSC) 110 ns D  |
| 52   | 2SC1623   | 1H DELAY(NTSC) 2H DELAY(PAL)     |
| 54   | 2SA812    | 1H DELAY(NTSC) 2H DELAY(PAL)     |
| 56   | 2SA1226   | 1H DELAY(NTSC) 2H DELAY(PAL)     |
| 57   | 2SC1623   | AMP                              |
| 58   | 2SA1226   | AMP                              |
| 59   | 2SC2757   | AMP                              |

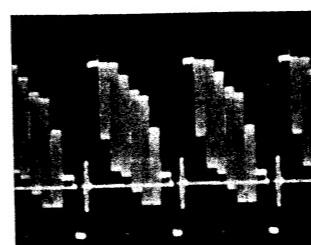
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

BT BOARD

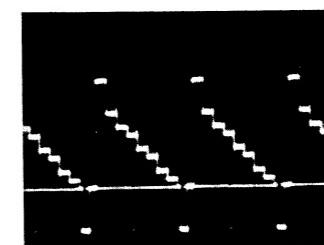
|      |           |   |      |          |   |
|------|-----------|---|------|----------|---|
| IC 1 | LA7816    | Y SELECT                                | 0 60 | 2SC1623  | AMP                                     |
| 2    | LA7816    | C SELECT                                | 61   | 2SC1623  | BPF 140 ns DELAY(NTSC)110 ns DELAY(PAL) |
| 3    | NJM7809FA | 9V REG                                  | 62   | 2SA812   | BPF 140 ns DELAY(NTSC)110 ns DELAY(PAL) |
| 4    | NJM7805FA | 5V REG                                  | 65   | 2SC1623  | BPF 140 ns DELAY(NTSC)110 ns DELAY(PAL) |
| 331  | CXL1009P  | CCD                                     | 71   | 2SC2757  | X'TAL OSC                               |
| 341  | CXL1009P  | CCD                                     | 72   | 2SA1226  | X'TAL OSC                               |
| 361  | CXL1009P  | CCD                                     | 73   | 2SC2757  | X'TAL OSC                               |
| 501  | CXA1539P  | CORRELATION                             | 74   | 2SA1226  | X'TAL OSC                               |
|      |           |   | 81   | DTA144EK | SW CONTROL                              |
| 0 1  | 2SA812    | BUFFER                                  | 82   | DTC144EK | SW CONTROL                              |
| 2    | 2SC1623   | BUFFER                                  | 83   | DTA144EK | SW CONTROL                              |
| 3    | 2SA1226   | AMP                                     | 84   | DTA144EK | SW CONTROL                              |
| 4    | 2SC2757   | AMP                                     | 85   | 2SB734   | SW CONTROL                              |
| 5    | 2SC1623   | AMP                                     | 86   | 2SD774   | SW CONTROL                              |
| 6    | 2SC1623   | Y DELAY                                 |      |          |   |
| 7    | 2SA1226   | Y DELAY                                 | D 1  | 1S2835   | SW                                      |
| 8    | 2SA812    | Y DELAY                                 | 2    | RD5.6MB2 | DC SHIFT                                |
| 9    | 2SA1226   | Y/C MIX                                 | 3    | 1S2837   | SW                                      |
| 10   | 2SC2757   | Y/C MIX                                 | 4    | 1S2837   | SW                                      |
| 11   | 2SC1623   | Y AMP & BUFFER                          | 5    | 1S2837   | SW CONTROL                              |
| 12   | 2SA1226   | Y AMP & BUFFER                          | 6    | 1S2835   | SW CONTROL                              |
| 13   | 2SC2757   | Y AMP & BUFFER                          | 7    | 1S2837   | SW CONTROL                              |
| 14   | 2SC2757   | Y DELAY                                 | 8    | 1S2835   | SW CONTROL                              |
| 15   | 2SA812    | Y DELAY                                 | 9    | 1S2835   | SW CONTROL                              |
| 16   | 2SC3624A  | BUFFER & SW                             | 331  | 1S2837   | CLAMP                                   |
| 17   | 2SC1623   | BPF 140 nsec(NTSC)110 nsec(PAL)         | 341  | 1S2837   | CLAMP                                   |
| 18   | 2SA812    | BPF 140 nsec(NTSC)110 nsec(PAL)         | 361  | 1S2837   | CLAMP                                   |
| 19   | 2SC1623   | BPF 140 nsec(NTSC)110 nsec(PAL)         |      |          |   |
| 20   | 2SC2757   | S COMB C LEVEL, PHASE                   |      |          |   |
| 21   | 2SC1623   | S COMB C LEVEL, PHASE                   |      |          |   |
| 22   | 2SC1623   | BPF, BUFFER                             |      |          |   |
| 23   | 2SC1623   | BPF, BUFFER                             |      |          |   |
| 24   | 2SA812    | BPF, BUFFER                             |      |          |   |
| 25   | 2SC3624A  | BUFFER & SW                             |      |          |   |
| 32   | 2SC1623   | 1H DELAY(NTSC)2H DELAY(PAL)             |      |          |   |
| 33   | 2SC1623   | 1H DELAY(NTSC)2H DELAY(PAL)             |      |          |   |
| 34   | 2SA812    | 1H DELAY(NTSC)2H DELAY(PAL)             |      |          |   |
| 35   | 2SA812    | 1H DELAY(NTSC)2H DELAY(PAL)             |      |          |   |
| 36   | 2SA1226   | 1H DELAY(NTSC)2H DELAY(PAL)             |      |          |   |
| 37   | 2SC1623   | AMP                                     |      |          |   |
| 38   | 2SA1226   | AMP                                     |      |          |   |
| 39   | 2SC2757   | AMP                                     |      |          |   |
| 40   | 2SC1623   | AMP                                     |      |          |   |
| 41   | 2SC1623   | BPF 140 ns DELAY(NTSC)110 ns DELAY(PAL) |      |          |   |
| 42   | 2SA812    | BPF 140 ns DELAY(NTSC)110 ns DELAY(PAL) |      |          |   |
| 43   | 2SC1623   | BPF 140 ns DELAY(NTSC)110 ns DELAY(PAL) |      |          |   |
| 44   | 2SC1623   | BPF 140 ns DELAY(NTSC)110 ns DELAY(PAL) |      |          |   |
| 45   | 2SC1623   | BPF 140 ns DELAY(NTSC)110 ns DELAY(PAL) |      |          |   |
| 52   | 2SC1623   | 1H DELAY(NTSC)2H DELAY(PAL)             |      |          |   |
| 54   | 2SA812    | 1H DELAY(NTSC)2H DELAY(PAL)             |      |          |   |
| 56   | 2SA1226   | 1H DELAY(NTSC)2H DELAY(PAL)             |      |          |   |
| 57   | 2SC1623   | AMP                                     |      |          |   |
| 58   | 2SA1226   | AMP                                     |      |          |   |
| 59   | 2SC2757   | AMP                                     |      |          |   |



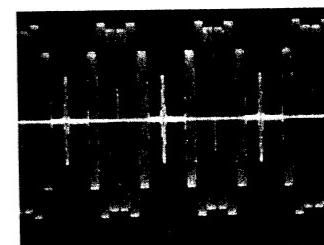
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.



## ① 1.1 Vp-p(H)



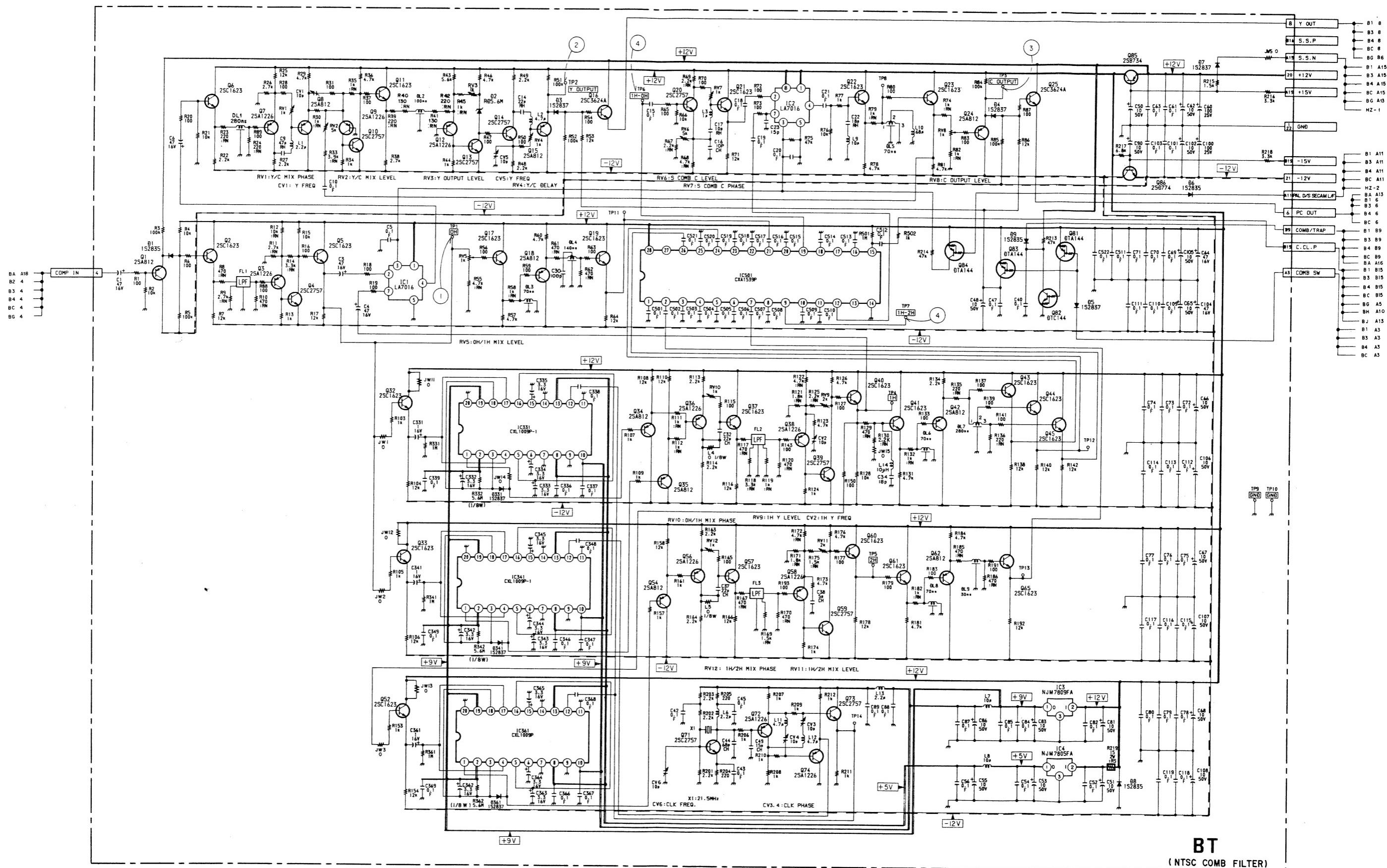
② 0.95 Vp-p(H)



③ 0.58 Vp-p(H)  
④ 1.9 Vp-p(H)

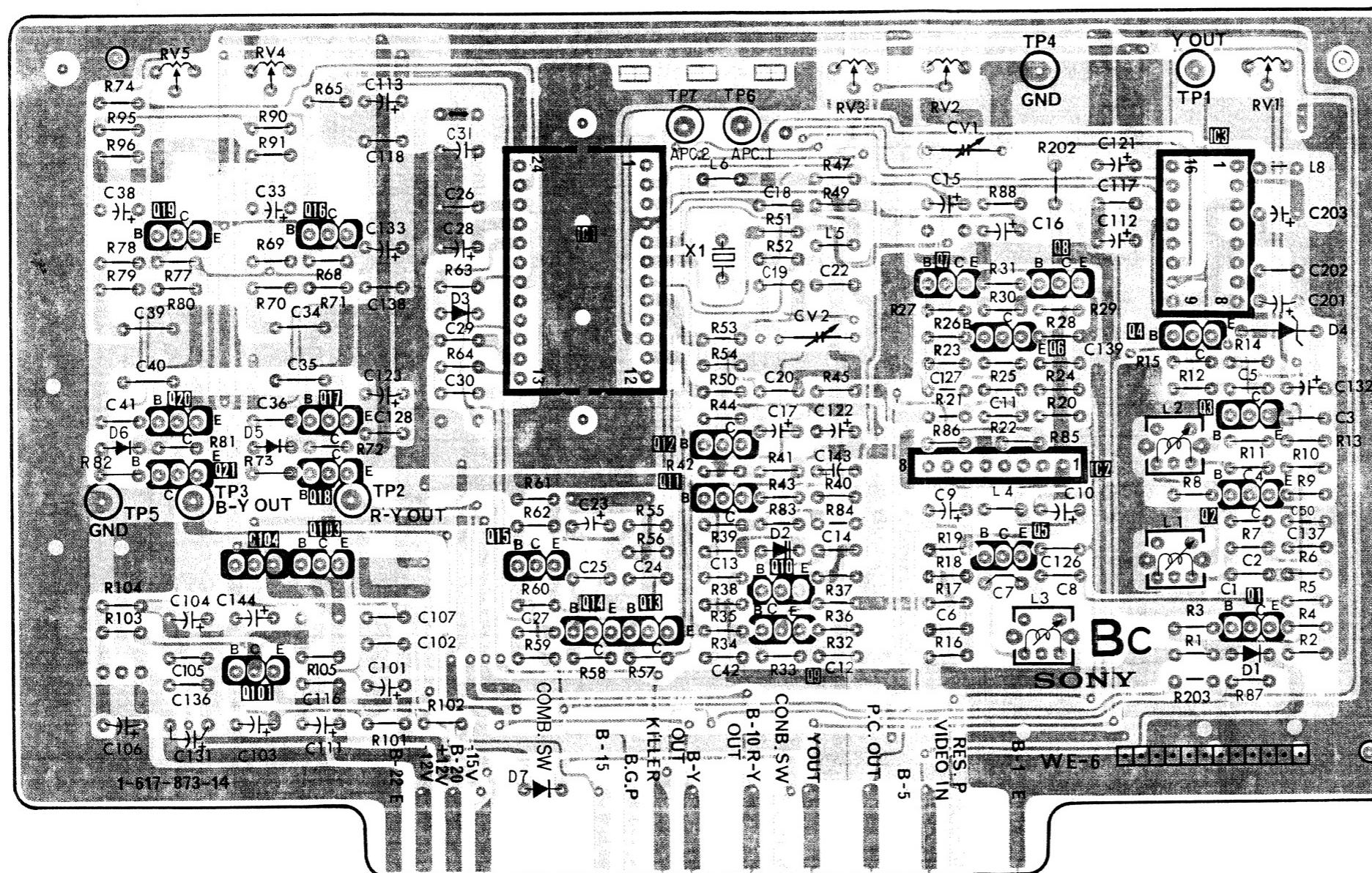
BT board (3 LINE DYNAMIC COMB FILTER, 2 LINE SIMPLE COMB FILTER, BPF

(BVM-1911 ONLY)



**BC Board (NTSC DECODER Y. TRAP)  
(BVM-1911 ONLY)**

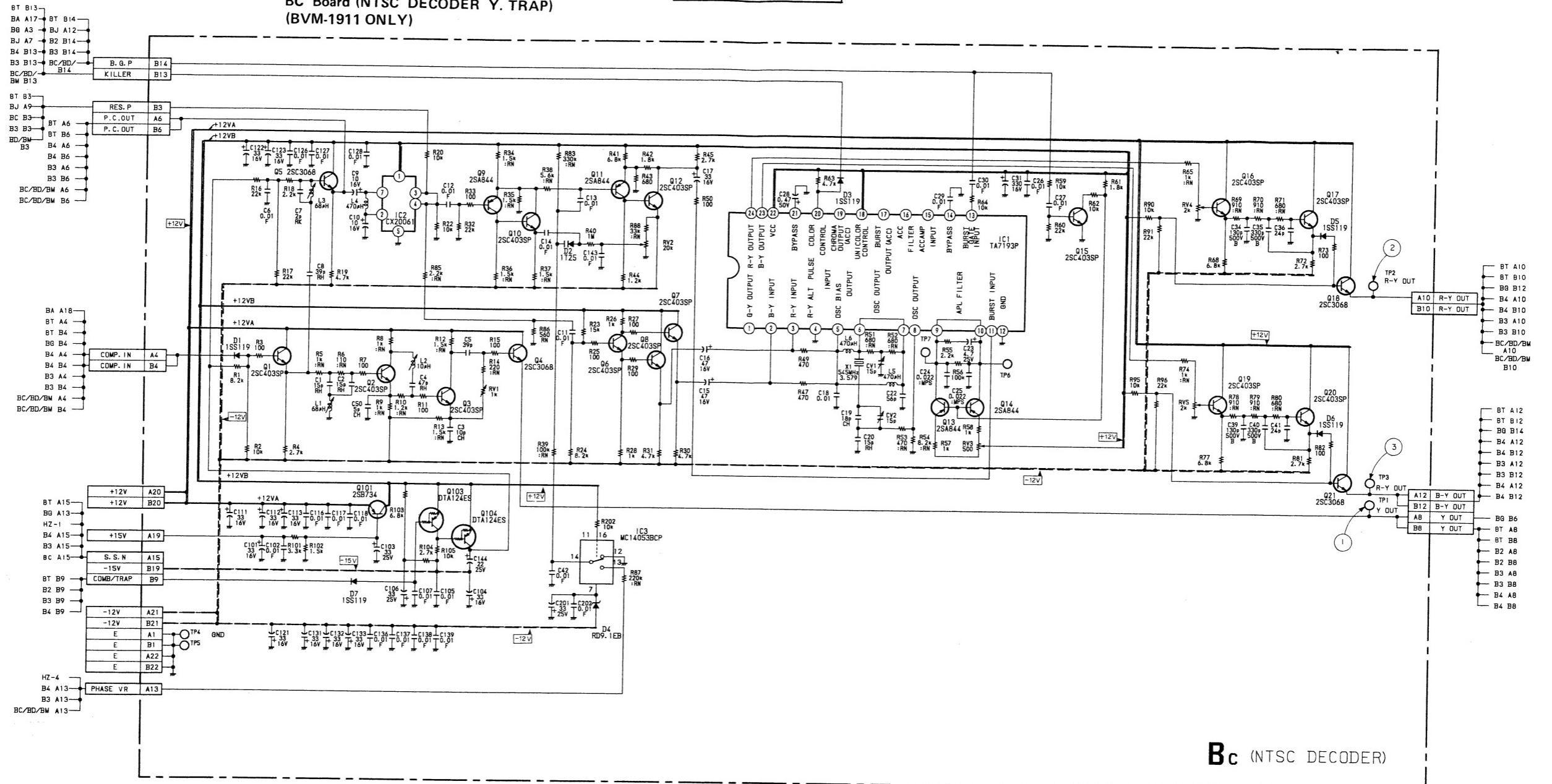
|           |               |               |   |         |        |             |     |     |
|-----------|---------------|---------------|---|---------|--------|-------------|-----|-----|
| IC        |               | I             |   | 2       |        | 3           |     |     |
| Q         | 9<br>20<br>21 | 6<br>17<br>18 |   | 7       | 8      | 4           |     |     |
|           | 04<br>101     | 03            | 5 | 2<br>11 | 0<br>9 | 3<br>2<br>1 |     |     |
| D         | 6             | 5             | 3 |         |        | 4           |     |     |
| TP<br>ADJ | RV5           | RV4           | 7 | TP7     | TP6    | TP4         | TPI | RV1 |
|           | TP5           | TP3           |   | CV2     | RV3    | RV2         |     | CV1 |
|           |               | TP2           |   |         |        |             |     |     |



-  : Pattern from the side which enables seeing.
-  : Pattern of the rear side.

**BC**      **BC**

**BC Board (NTSC DECODER Y. TRAP  
(BVM-1911 ONLY)**

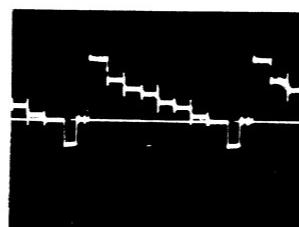


**B<sub>c</sub>** (NTSC DECODER)

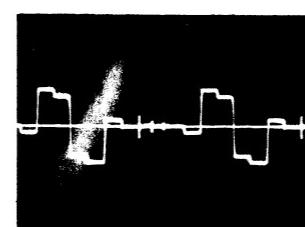
BC BOARD

|     |            |                 |
|-----|------------|-----------------|
| IC1 | TA7193P    | DEMODULATOR     |
| 2   | CX20061    | RESIDUAL SWITCH |
| 3   | MC14053BCP | ANALOG SWITCH   |
|     |            |                 |
| Q1  | 2SC403SP   | BUFF.           |
| 2   | 2SC403SP   | ACTIVE FILTER   |
| 3   | 2SC403SP   | Y-DELAY CORRECT |
| 4   | 2SC3068    | BUFF.           |
| 5   | 2SC3068    | BUFF.           |
| 6   | 2SC403SP   | AMP.            |
| 7   | 2SC403SP   | BUFF.           |
| 8   | 2SC403SP   | BUFF.           |
| 9   | 2SA844     | PHASE CONTROL   |
| 10  | 2SC403SP   | PHASE CONTROL   |
| 11  | 2SA844     | PHASE CONTROL   |
| 12  | 2SC403SP   | PHASE CONTROL   |
| 13  | 2SA844     | APL FILTER      |

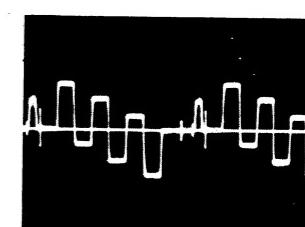
|     |          |                 |
|-----|----------|-----------------|
| 14  | 2SA844   | APL FILTER      |
| 15  | 2SC403SP | APL FILTER      |
| 16  | 2SC403SP | LOW PASS FILTER |
| 17  | 2SC403SP | LOW PASS FILTER |
| 18  | 2SC3068  | BUFF.           |
| 19  | 2SC403SP | LOW PASS FILTER |
| 20  | 2SC403SP | LOW PASS FILTER |
| 21  | 2SC3068  | BUFF.           |
| 101 | 2SB734   | SYSTEM SW.      |
| 103 | DTA124ES | COMB. SWITCH    |
| 104 | DTA124ES | COMB. SWITCH    |
|     |          |                 |
| D1  | 1SS119   | SYSTEM SWITCH   |
| 2   | 1T25     | PHASE CONTROL   |
| 3   | 1SS119   | KILLER SWITCH   |
| 4   | RD9.1EB3 | SWITCH BIAS.    |
| 5   | 1SS119   | SYSTEM SWITCH   |
| 6   | 1SS119   | SYSTEM SWITCH   |
| 7   | 1SS119   | PROTECTOR       |



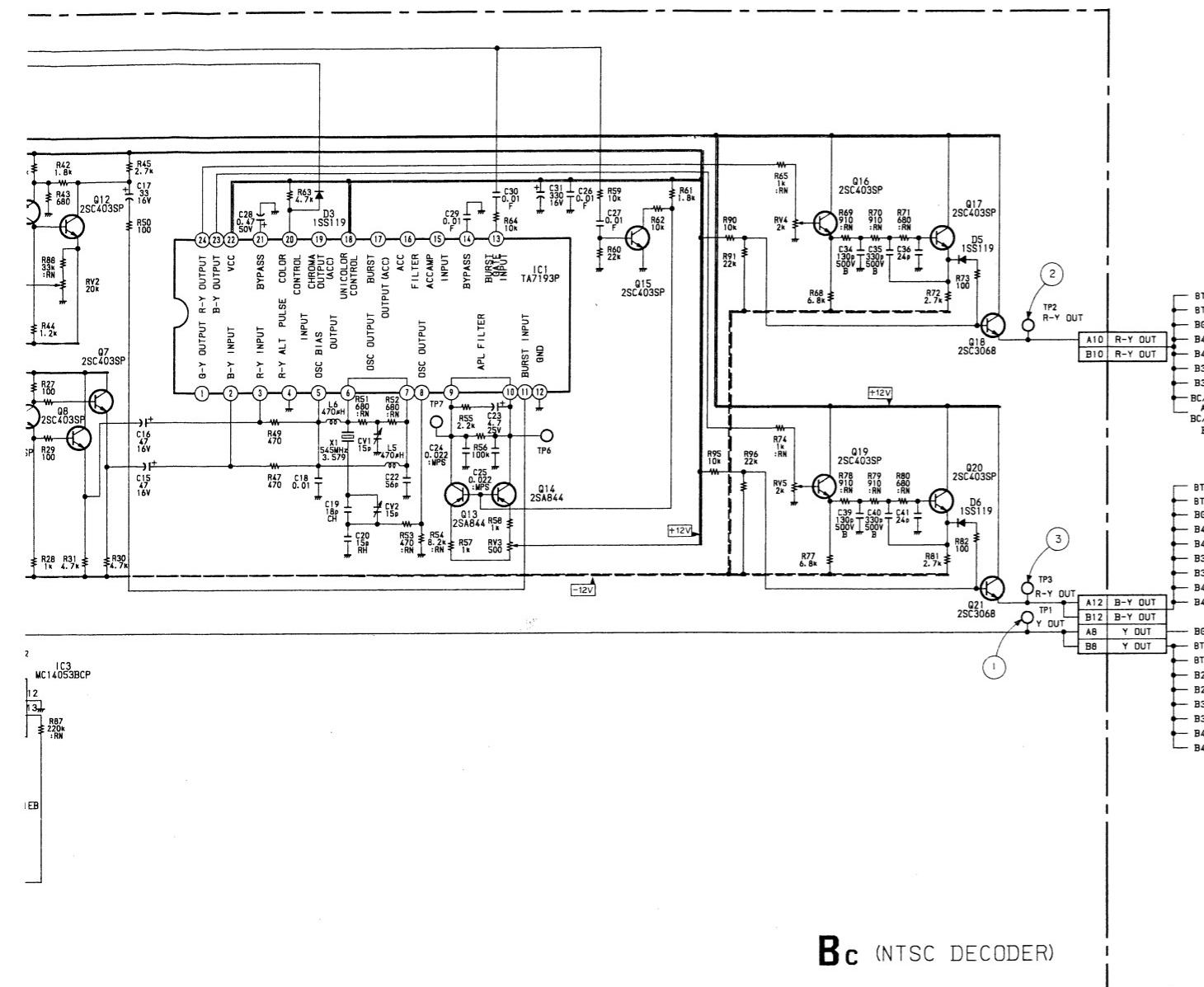
① 1Vp-p (H)



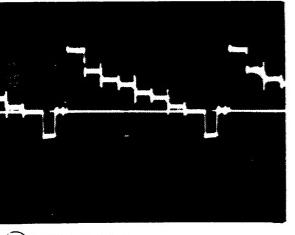
② 0.3V<sub>n-p</sub>(H)



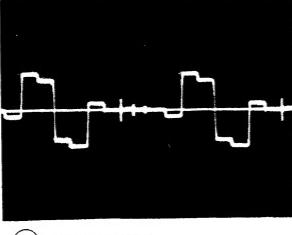
3 0.36 V<sub>D</sub> = (1)



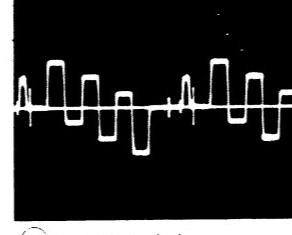
Bc (NTSC DECODER)



(1) 1Vp-p (H)

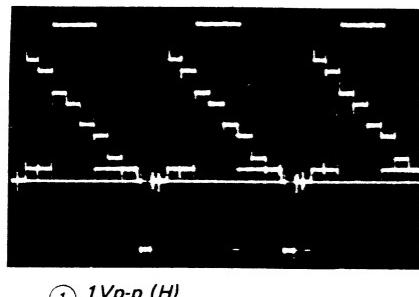


(2) 0.3Vp-p (H)

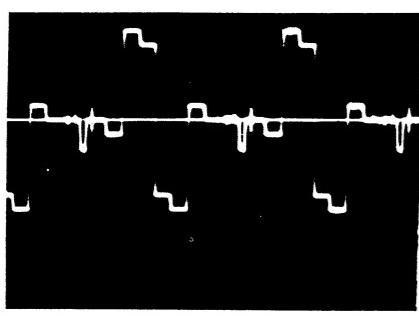


(3) 0.36 Vp-p (H)

BD board (PAL DECODER Y.TRAP)  
(BVM-2011P ONLY)

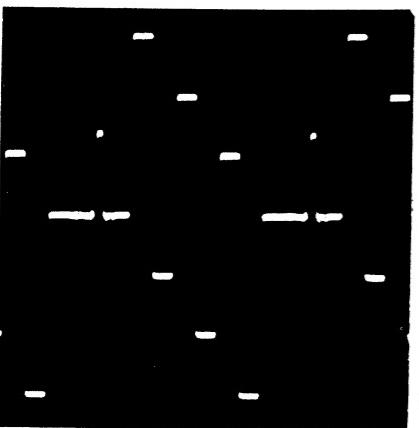


① 1Vp-p (H)



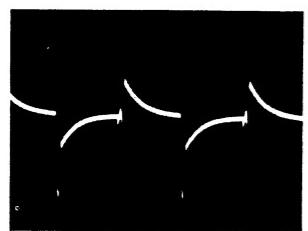
② 0.3Vp-p  
③ 0.32Vp-p

④ 0.32Vp-p  
⑤ 0.36Vp-p

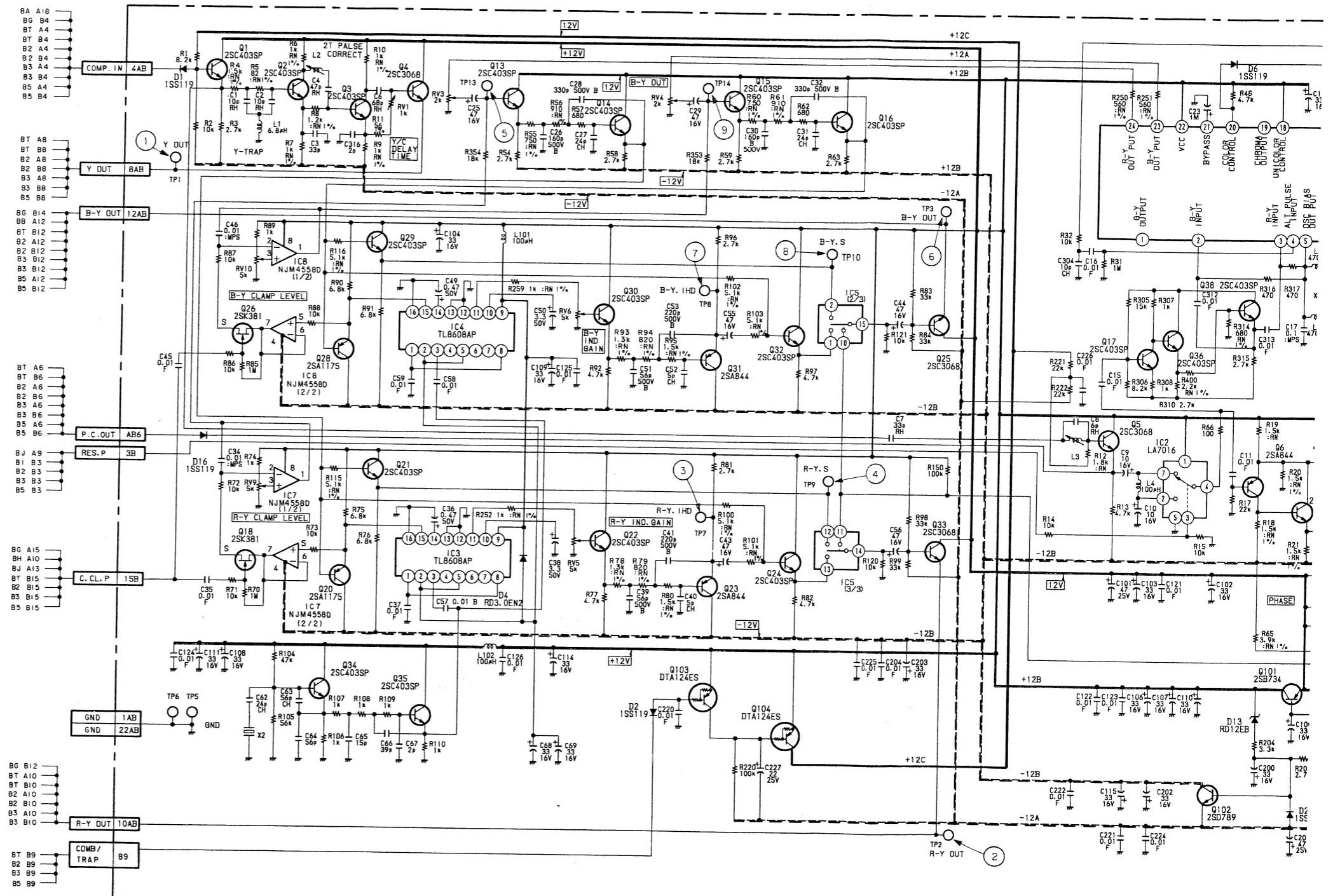


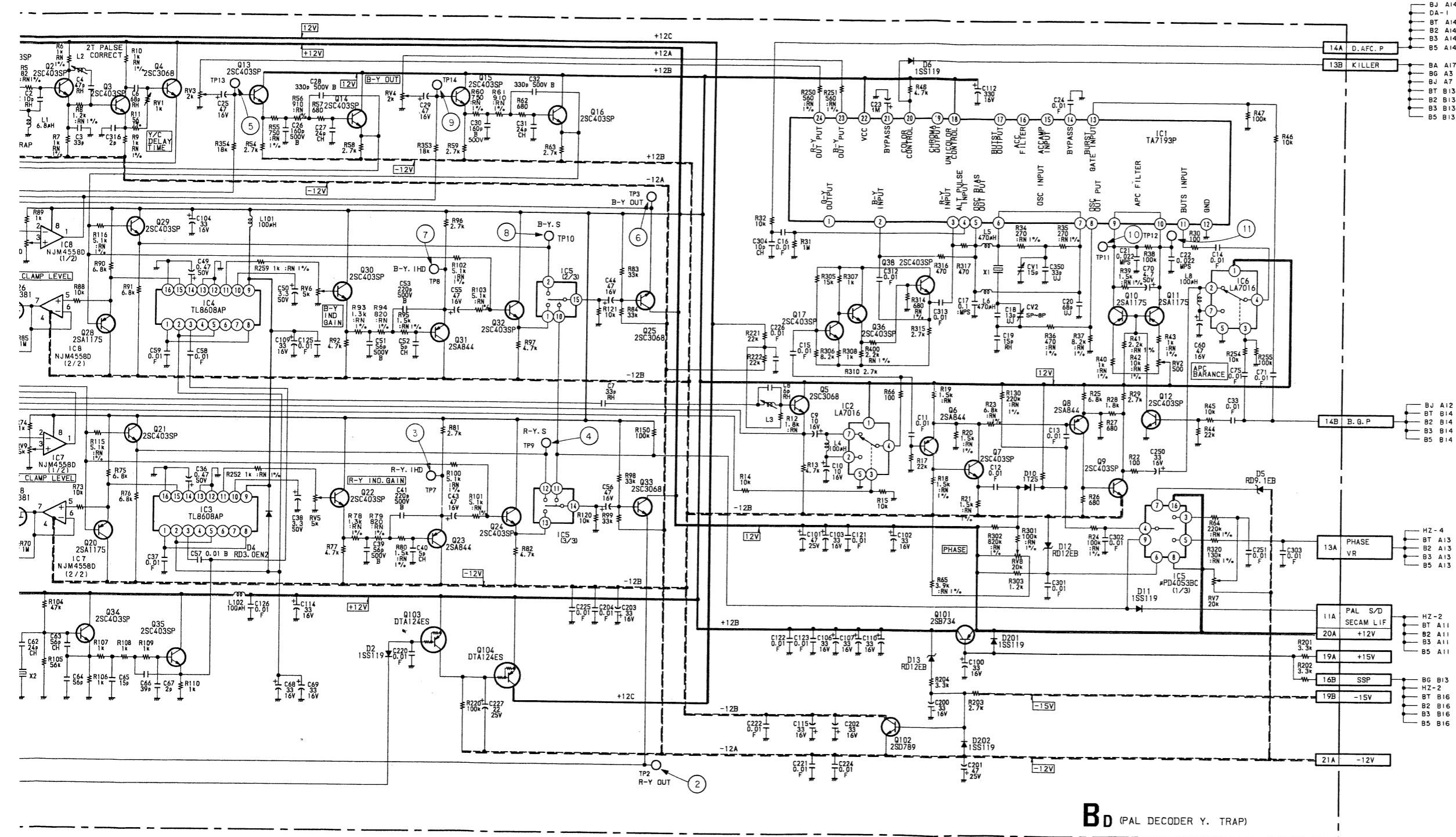
⑥ 0.38Vp-p  
⑦ 0.38Vp-p

⑧ 0.39Vp-p  
⑨ 0.42Vp-p



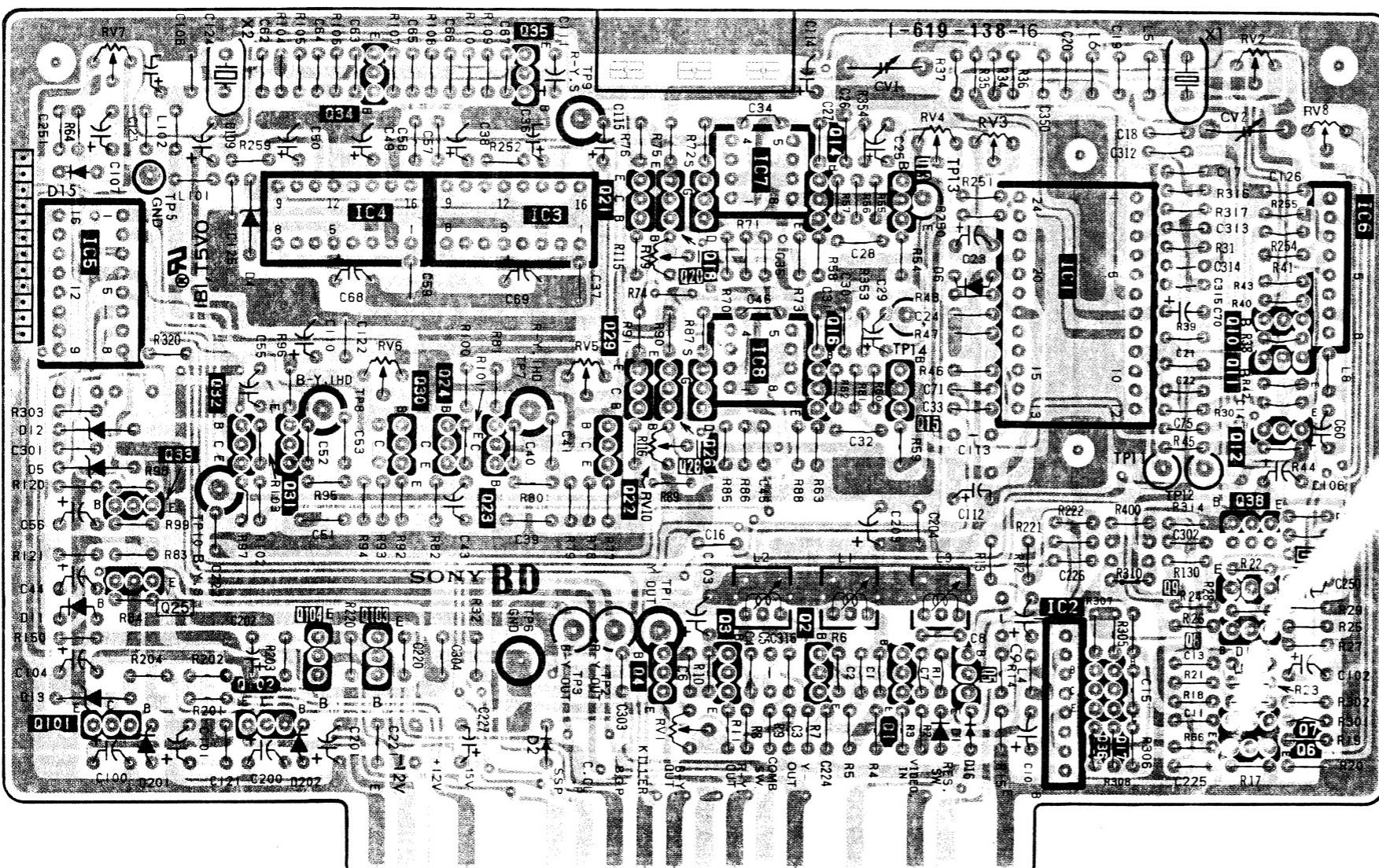
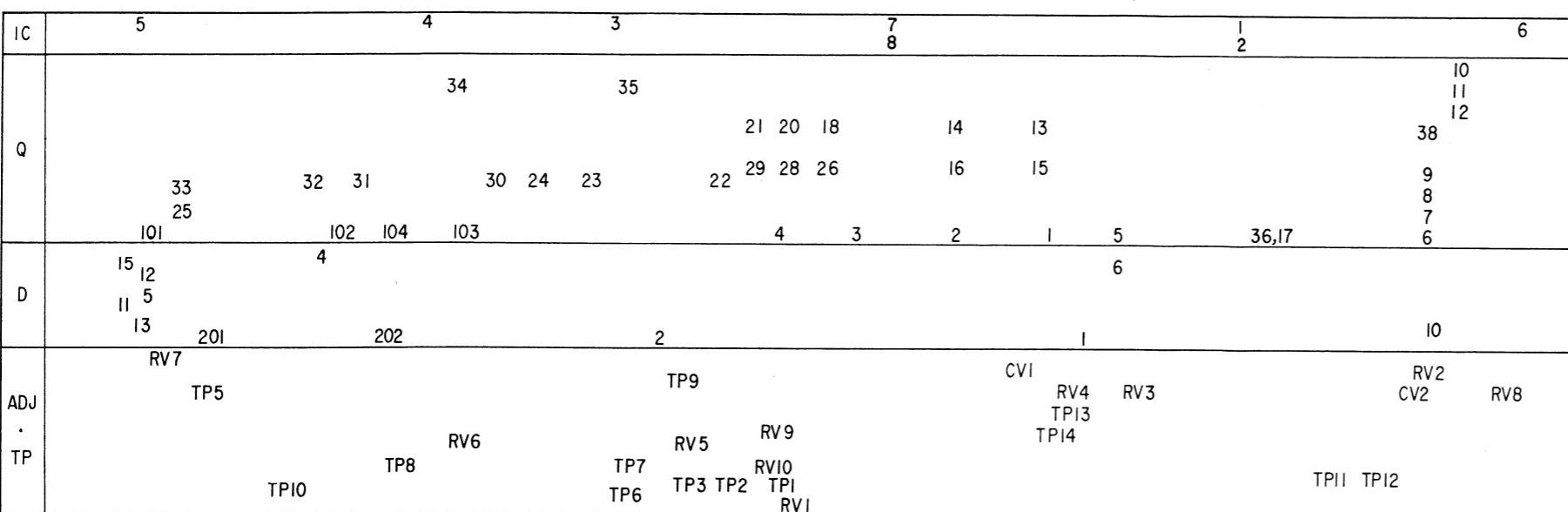
⑩ 0.26Vp-p (H)  
⑪ 0.26Vp-p (H)





BD (PAL DECODER Y. TRAP)

**BD board (PAL DECODER Y. TRAP)**  
(BVM-2011P ONLY)

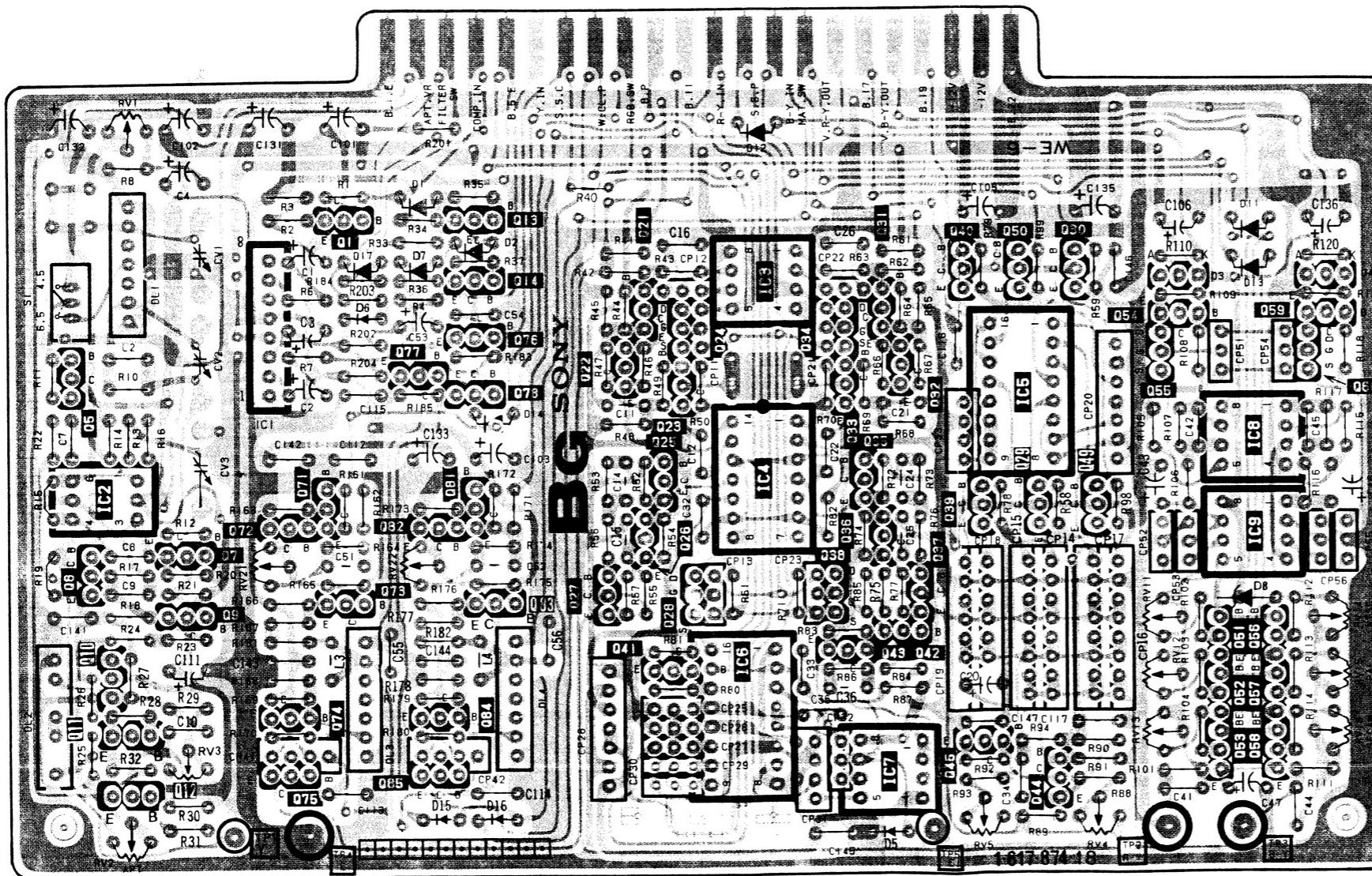


BD BOARD

|     |            |                   |
|-----|------------|-------------------|
| IC1 | TA7193P    | PAL DEMODULATOR   |
| 2   | LA7016     | RESIDUAL SWITCH   |
| 3   | TL8608P    | 1H DELAY LINE     |
| 4   | TL8608P    | 1H DELAY LINE     |
| 5   | MC14053BCP | ANALOG SWITCHER   |
| 6   | LA7016     | BURST GATE        |
| 7   | NJM4558P   | R-Y CLAMP         |
| 8   | NJM4558P   | B-Y CLAMP         |
| Q1  | 2SC403SP   | BUFFER            |
| 2   | 2SC403SP   | ACTIVE FILTER     |
| 3   | 2SC403SP   | Y-DELAY CORRECTOR |
| 4   | 2SC3068    | BUFFER            |
| 5   | 2SC3068    | BUFFER            |
| 6   | 2SA844     | PHASE CONTROLLER  |
| 7   | 2SC403SP   | PHASE CONTROLLER  |
| 8   | NJM4558P   | PHASE CONT. AMP.  |
| 9   | NJM4558P   | PHASE CONT. AMP.  |
| 10  | 2SA1175    | APL FILTER        |
| 11  | 2SA1175    | APL FILTER        |
| 12  | 2SC403SP   | APL FILTER SWITCH |
| 13  | 2SC403SP   | R-Y L.P.F.        |
| 14  | 2SC403SP   | R-Y L.P.F.        |
| 15  | 2SC403SP   | B-Y L.P.F.        |
| 16  | 2SC403SP   | B-Y L.P.F.        |
| 17  | 2SC403SP   | AMPLIFIER         |
| 18  | 2SK381     | R-Y CLAMP         |
| 20  | 2SA1175    | BUFFER            |
| 21  | 2SC403SP   | BUFFER            |
| 22  | 2SC403SP   | CCD OUT L.P.F.    |
| 23  | 2SA844     | CCD OUT L.P.F.    |
| 24  | 2SC403SP   | BUFFER            |
| 25  | 2SC3068    | BUFFER            |
| 26  | 2SK381     | B-Y CLAMP         |
| 28  | 2SA1175    | BUFFER            |
| 29  | 2SC403SP   | BUFFER            |
| 30  | 2SC403SP   | CCD OUT L.P.F.    |
| 31  | 2SA844     | CCD OUT L.P.F.    |
| 32  | 2SC403SP   | BUFFER            |
| 33  | 2SC3068    | BUFFER            |
| 34  | 2SC403SP   | CCD CLOCK GEN     |
| 35  | 2SC403SP   | CCD CLOCK GEN     |
| 36  | 2SC403SP   | BUFFER            |
| 38  | 2SC403SP   | BUFFER            |
| 101 | 2SB734     | SYSTEM SWITCH     |
| 102 | 2SD789     | SYSTEM SWITCH     |
| 103 | DTA124ES   | COMB. SWITCH      |
| 104 | DTA124ES   | COMB. SWITCH      |
| D1  | 1SS119     | SYSTEM SWITCH     |
| 2   | 1SS119     | COMB. SWITCH      |
| 4   | RD3.0EB1   | CCD BIAS          |
| 5   | RD9.1EB2   | SWITCH BIAS       |
| 6   | 1SS119     | KILLER SWITCH     |
| 10  | 1T25       | PHASE CONTROL     |
| 11  | 1SS119     | PAL S/D SWITCH    |
| 12  | RD12EB2    | PHASE SWITCH      |
| 13  | RD12EB2    | SYSTEM SWITCH     |
| 16  | 1SS119     | COMB SW           |
| 201 | 1SS119     | PROTECTOR         |
| 202 | 1SS119     | PROTECTOR         |

BG board (COLOR GAIN CONTROL, COMPONENT R-Y AMP & DELAY, APERTURE CONTROL,  
Y DELAY, VECTOR OUT, NTSC MATRIX SW, G-Y MATRIX AMP)

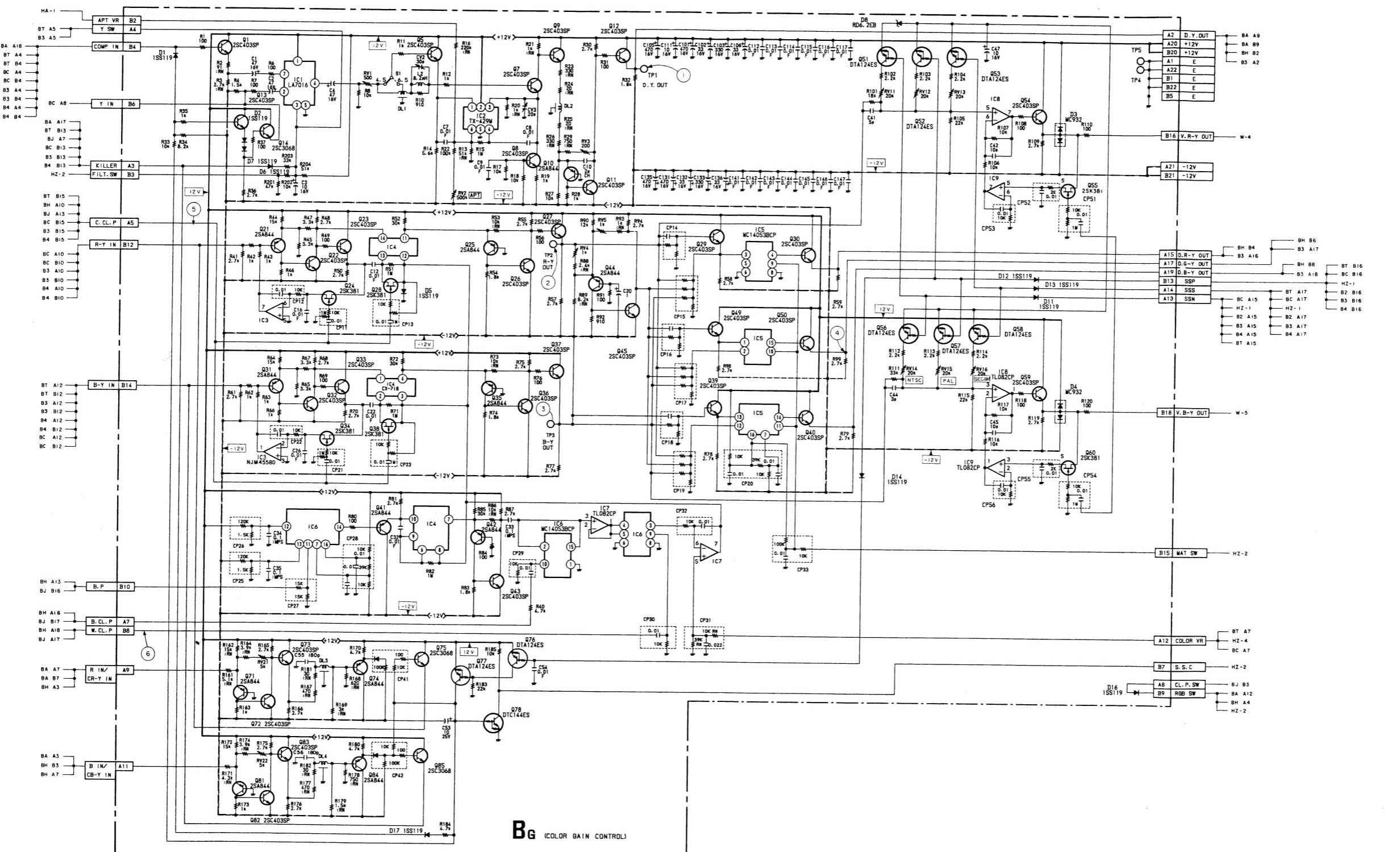
| IC        | 1  | 3   | 5                    | 8                  |
|-----------|--|---|----------------------|--------------------|
| Q         | 13<br>14<br>76<br>77<br>78<br>81<br>82<br>83<br>21<br>22<br>23<br>25<br>26<br>28<br>34<br>33<br>32<br>35<br>36<br>37<br>38<br>42<br>39<br>29<br>49<br>40<br>50<br>30<br>54<br>55<br>56<br>51<br>52<br>57<br>53<br>58<br>59<br>60 | 4   | 6                    | 7                  |
| D         | 17<br>6<br>15<br>16<br>1<br>7<br>2<br>14<br>12   | 1   | 3                    | 11<br>13<br>4<br>8 |
| TP<br>ADJ | RVI<br>CV2<br>CV3<br>RV21<br>RV3<br>RV2<br>TP1<br>TP4<br>RV22  | RVII<br>RV11<br>RV12<br>RV13<br>RV4<br>TP2<br>TP3 | RV14<br>RV15<br>RV16 | RV1                |



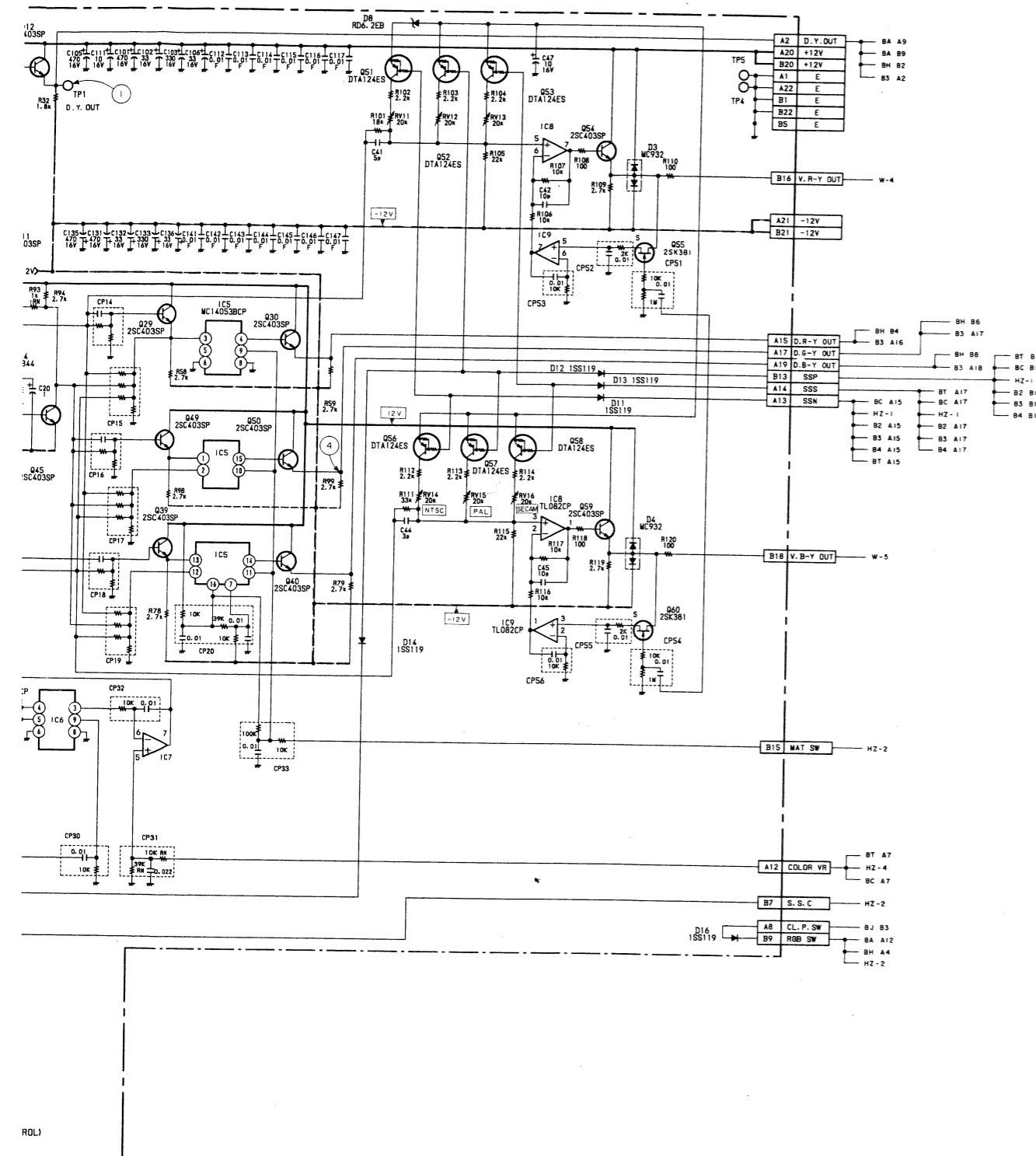
• : Pattern from the side which enables seeing.

• : Pattern of the rear side.

BG board (COLOR GAIN CONTROL, COMPONENT R-Y AMP & DELAY, APERUTURE CONTROL  
Y DERAY, VECTOR OUT NTSC MATRIX SW, G-Y MATRIX AMP)



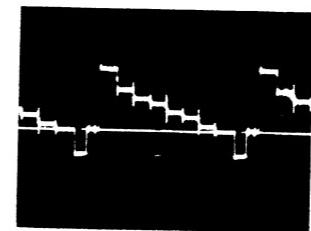
## BG BOARD



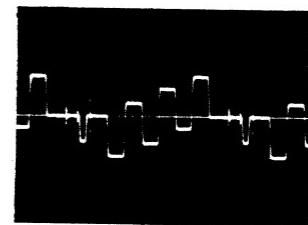
|     |            |                        |
|-----|------------|------------------------|
| IC1 | LA7016     | FILTER SW              |
| 2   | TX-429M    | APERTURE               |
| 3   | NJM4558D   | COLOR DIFFERENCE CLAMP |
| 4   | CX-718D    | CHROMA CONTROL         |
| 5   | MC14053BCP | MATRIX SW              |
| 6   | MC14053BCP | CHROMA CONTROL         |
| 7   | TL082CP    | CHROMA CONTROL         |
| 8   | TL082CP    | VECTOR OUTPUT          |
| 9   | TL082CP    | VECTOR OUTPUT          |
| Q1  | 2SC403SP   | BUFF                   |
| 5   | 2SC403SP   | APERTURE               |
| 7   | 2SC403SP   | APERTURE               |
| 8   | 2SC403SP   | APERTURE               |
| 9   | 2SC403SP   | Y DELAY                |
| 10  | 2SA844     | Y AMP                  |
| 11  | 2SC403SP   | Y AMP                  |
| 12  | 2SC403SP   | Y AMP                  |
| 13  | 2SC403SP   | BUFF                   |
| 14  | 2SC3068    | BUFF                   |
| 21  | 2SA844     | R-Y AMP                |
| 22  | 2SC403SP   | R-Y AMP                |
| 23  | 2SC403SP   | R-Y CLAMP              |
| 24  | 2SK381     | R-Y CLAMP              |
| 25  | 2SA844     | R-Y CHROMA CONTROL     |
| 26  | 2SC403SP   | R-Y CHROMA CONTROL     |
| 27  | 2SC403SP   | R-Y CHROMA CONTROL     |
| 28  | 2SK381     | R-Y CHROMA CONTROL     |
| 29  | 2SC403SP   | R-Y BUFF               |
| 30  | 2SC403SP   | R-Y BUFF               |
| 31  | 2SA844     | B-Y AMP                |
| 32  | 2SC403SP   | B-Y AMP                |
| 33  | 2SC403SP   | B-Y CLAMP              |
| 34  | 2SK381     | B-Y CLAMP              |
| 35  | 2SA844     | B-Y CHROMA CONTROL     |
| 36  | 2SC403SP   | B-Y CHROMA CONTROL     |
| 37  | 2SC403SP   | B-Y CHROMA CONTROL     |
| 38  | 2SK381     | B-Y CHROMA CONTROL     |
| 39  | 2SC403SP   | B-Y BUFF               |
| 40  | 2SC403SP   | B-Y BUFF               |
| 41  | 2SA844     | CHROMA CONTROL         |
| 42  | 2SA844     | CHROMA CONTROL         |
| 43  | 2SC403SP   | CHROMA CONTROL         |

|     |           |                |
|-----|-----------|----------------|
| Q44 | 2SA844    | CHROMA CONTROL |
| 45  | 2SC403SP  | CHROMA CONTROL |
| 49  | 2SC403SP  | G-Y BUFF       |
| 50  | 2SC403SP  | G-Y BUFF       |
| 51  | DTA124ES  | GAIN CHANGE SW |
| 52  | DTA124ES  | GAIN CHANGE SW |
| 53  | DTA124ES  | GAIN CHANGE SW |
| 54  | 2SC403SP  | R-Y BUFF       |
| 55  | 2SK381    | R-Y CLAMP      |
| 56  | DTA124ES  | GAIN CHANGE SW |
| 57  | DTA124ES  | GAIN CHANGE SW |
| 58  | DTA124ES  | GAIN CHANGE SW |
| 59  | 2SC403SP  | B-Y BUFF       |
| 60  | 2SK381    | B-Y CLAMP      |
| 71  | 2SA844    | R-Y AMP        |
| 72  | 2SC403SP  | R-Y AMP        |
| 73  | 2SC403SP  | R-Y AMP        |
| 74  | 2SA844    | R-Y DELAY      |
| 75  | 2SC3068   | R-Y BUFF       |
| 76  | DTA124ES  | COMPONENT SW   |
| 77  | DTA124ES  | COMPONENT SW   |
| 78  | DTC144ES  | COMPONENT SW   |
| 81  | 2SA844    | B-Y AMP        |
| 82  | 2SC403SP  | B-Y AMP        |
| 83  | 2SC403SP  | B-Y AMP        |
| 84  | 2SA844    | B-Y DELAY      |
| 85  | 2SC3068   | B-Y BUFF       |
| D1  | ISS119    | COMPONENT SW   |
| 2   | ISS119    | DC SHIFT SW    |
| 3   | MC932     | PROTECT        |
| 4   | MC932     | PROTECT        |
| 5   | ISS119    | PROTECT        |
| 6   | ISS119    | DC SHIFT       |
| 7   | ISS119    | FILTER SW      |
| 8   | RD6_2E-B2 | +6V REG        |
| 11  | ISS119    | GAIN CHANGE SW |
| 12  | ISS119    | GAIN CHANGE SW |
| 13  | ISS119    | GAIN CHANGE SW |
| 14  | ISS119    | GAIN CHANGE SW |
| 16  | ISS119    | R.G.B. SW      |
| 17  | ISS119    | KILLER         |

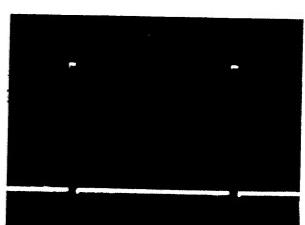
5. DIAGRAMS



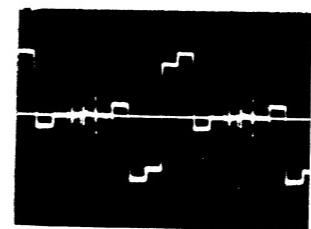
(1) 1.0Vp-p (H)



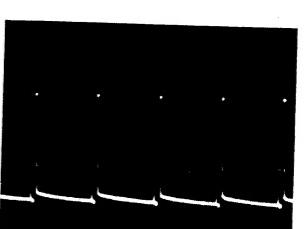
(3) 1.7Vp-p (H)



(5) 4.8Vp-p (H)



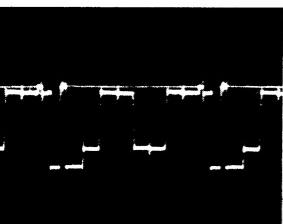
(2) 1.4Vp-p (H)



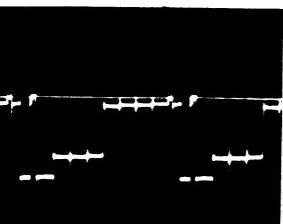
(6) 12Vp-p (H)

BH BOARD

|          |            |  |
|----------|------------|--|
| IC1(1/3) | TC4053BP   | COMPOSITE/R.G.B. CHANGE SW                       |
| (2/3)    |            | SET UP & CROSS HATCH SW                          |
| (3/3)    |            | SCREENING SW                                     |
| 2(1/3)   | TC4053BP   | COMPOSITE/R.G.B. CHANGE SW                       |
| (2/3)    |            | SET UP SW  |
| (3/3)    |            | SCREENING SW                                     |
| 3(1/3)   | TC4053BP   | COMPOSITE/R.G.B. CHANGE SW                       |
| (2/3)    |            | SET UP SW  |
| (3/3)    |            | SCREENING SW                                     |
| 4(1/3)   | TC4053BP   | COMPOSITE/R.G.B. CHANGE SW                       |
| (2/3)    |            | SET UP SW  |
| (3/3)    |            | SCREENING SW                                     |
| 5        | NJM4558S   | SAMPLE HOLD                                      |
| 6        | NJM4558S   | SAMPLE HOLD                                      |
| 7        | LA7016     | BLUE ONLY SW                                     |
| 8        | LA7016     | BLUE ONLY SW                                     |
| 9        | MC14053BCP | AGC PULSE, SET UP, WHITE,<br>VITC INSERT GEN     |
| 10(1/2)  | MC14053BCP | AGC PULSE, SET UP, WHITE,<br>VITC INSERT GEN     |
| (2/2)    |            | COLOR DIFFERENCE & R.G.B.<br>SCREENING PULSE GEN |
| 11(1/4)  | MC14081BCP | AGC PULSE, SET UP, WHITE,<br>VITC INSERT GEN     |
| (3/4)    |            | COLOR DIFFERENCE & R.G.B.<br>SCREENING PULSE GEN |
| (2/4)    |            | Y SCREENING PULSE GEN                            |
| (4/4)    |            |  |
| 12       | MC14081BCP | AGC PULSE, SET UP, WHITE,<br>VITC INSERT GEN     |
| 13       | MC14001BCP | AGC PULSE, SET UP, WHITE,<br>VITC INSERT GEN     |
| 14       | TC4030BP   | AGC PULSE, SET UP, WHITE,<br>VITC INSERT GEN     |
| 101      | TX-429M    | R CONTRAST CONTROL                               |
| 102      | TL082CP    | R CONTRAST & BRIGHT CONTROL                      |
| 201      | TX-429M    | G CONTRAST CONTROL                               |
| 202      | TL082CP    | G CONTRAST & BRIGHT CONTROL                      |
| 301      | TX-429M    | B CONTRAST CONTROL                               |
| 302      | TL082CP    | B CONTRAST & BRIGHT CONTROL                      |
|          |            |  |
| Q1       | 2SC403SP   | Y BUFF   |
| 2        | 2SK523     | Y SAMPLE HOLD                                    |
| 3        | 2SA844     | Y BUFF   |
| 4        | 2SC403SP   | R-Y/R BUFF                                       |

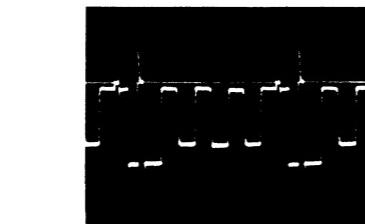


(1) 0.8Vp-p (H)



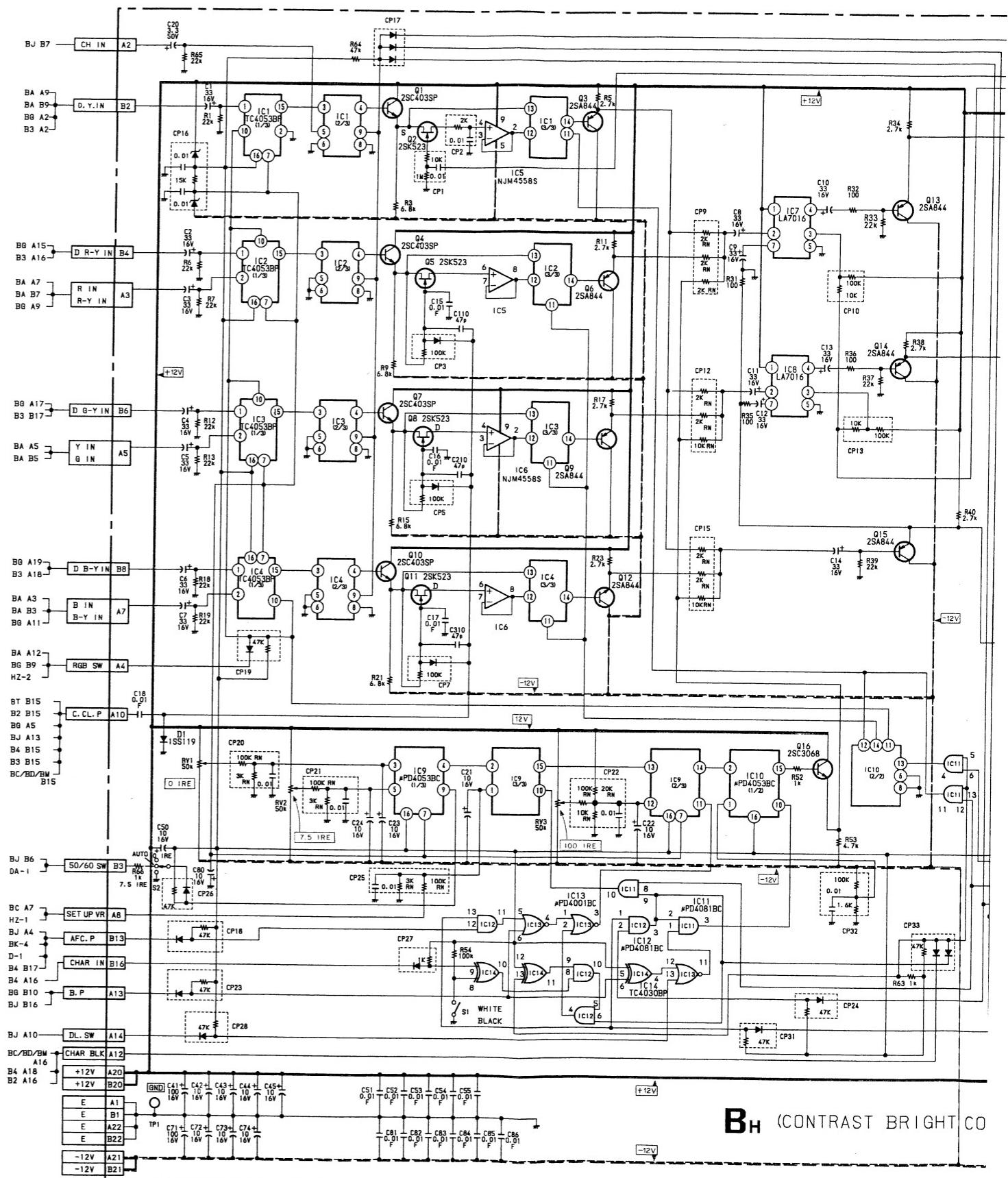
(2) 0.8Vp-p (H)

5. DIAGRAMS

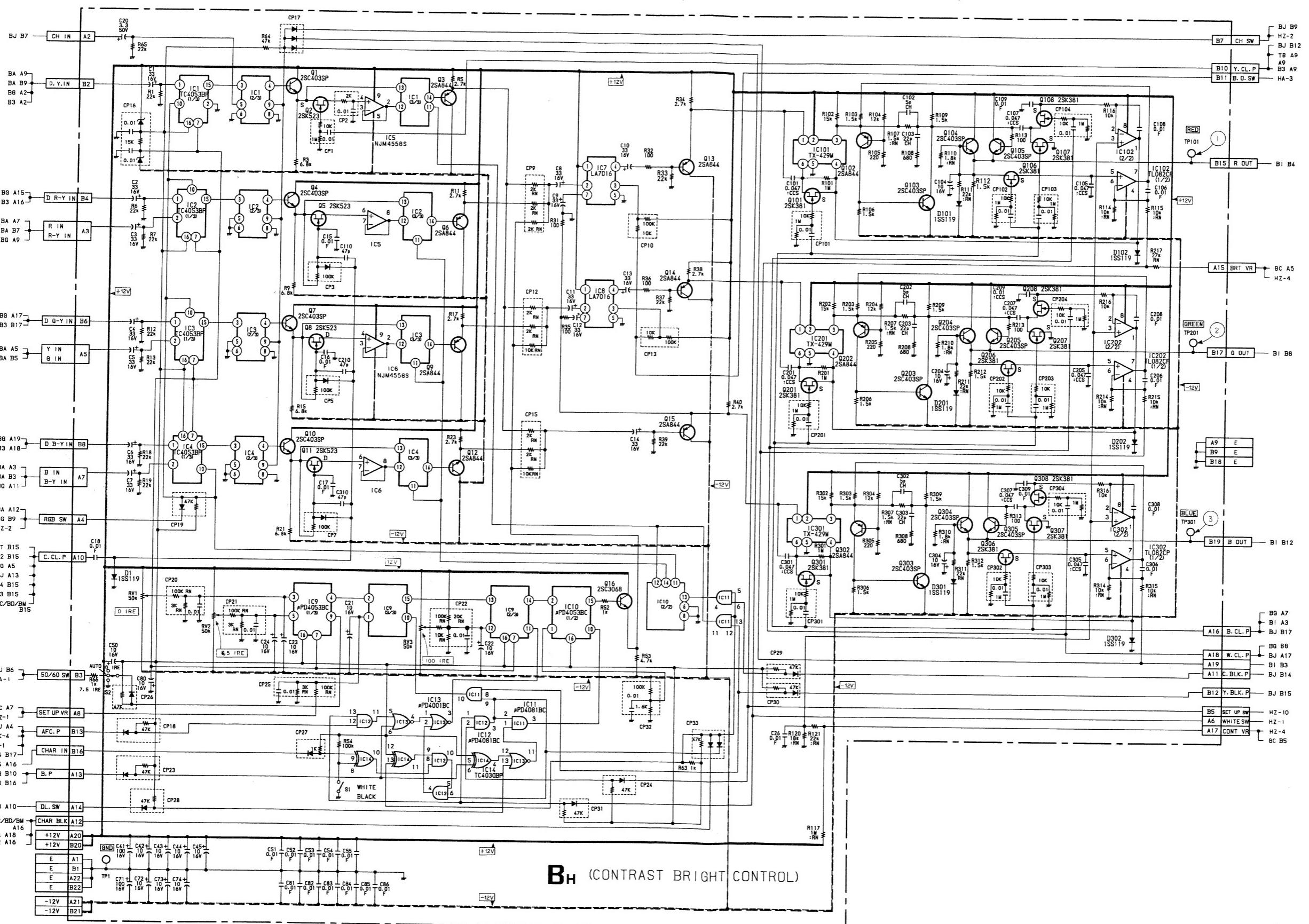


(3) 0.7Vp-p (H)

## BH board (Y/COLOR DIFFERENCE/RGB SIGNAL SWITCHING, Y-C MATRIX, CONTRAST/BRIGHTNESS CONTROL)



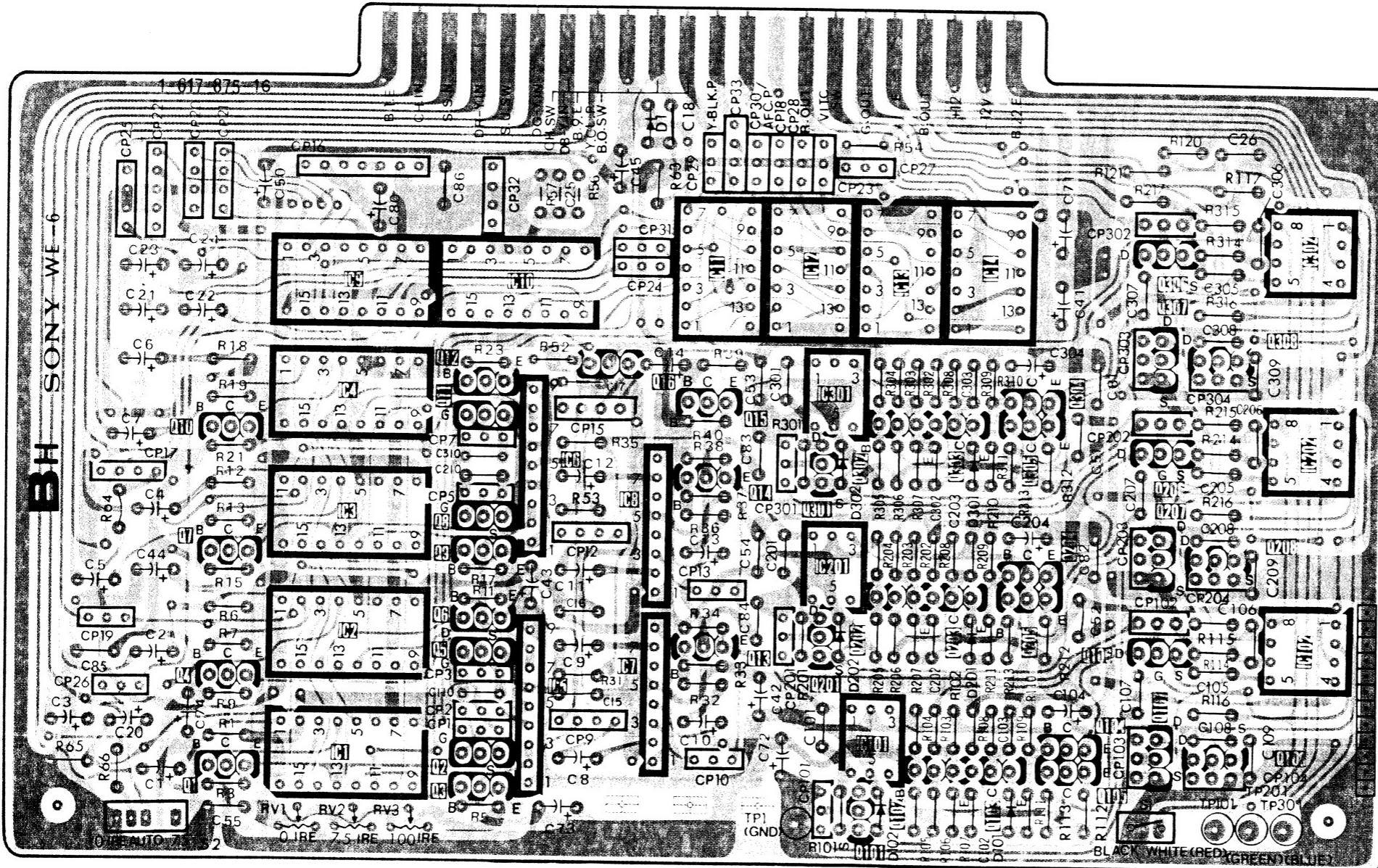
BH board (Y/COLOR DIFFERENCE/RGB SIGNAL SWITCHING, Y-C MATRIX, CONTRAST/BRIGHTNESS CONTROL)



BH BH

BH board (Y/COLOR DIFFERENCE/RGB SIGNAL SWITCHING, Y-C MATRIX, CONTRAST/BRIGHTNESS CONTROL)

|           |    |                       |  |                                    |                         |   |  |                      |     |
|-----------|----|-----------------------|--|------------------------------------|-------------------------|---|--|----------------------|-----|
| IC        |    | 9<br>4<br>3<br>2<br>1 | 10<br>6<br>5                           | 11<br>8<br>7                       | 12<br>301<br>201<br>101 | 13  | 14   |                      | 102 |
|           |    |                       |  |                                    |                         |   |  |                      | 202 |
|           |    |                       |  |                                    |                         |   |  |                      | 302 |
| Q         | 10 |                       | 12<br>11<br>8<br>9<br>6<br>5<br>2<br>3 | 16<br>15<br>301<br>14<br>201<br>13 |                         | 304<br>302<br>303<br>305<br>204<br>203<br>205<br>101<br>102<br>103<br>105 | 306<br>307<br>308<br>206<br>207<br>208<br>106<br>104<br>107<br>108 |                      |     |
| D         |    |                       |  | 1                                  |                         | 302<br>202<br>102   | 301<br>201<br>101  |                      |     |
| TP<br>ADJ |    |                       | RV1 RV2 RV3                            |                                    | TP1                     |   |  | TP201<br>TP101 TP301 |     |



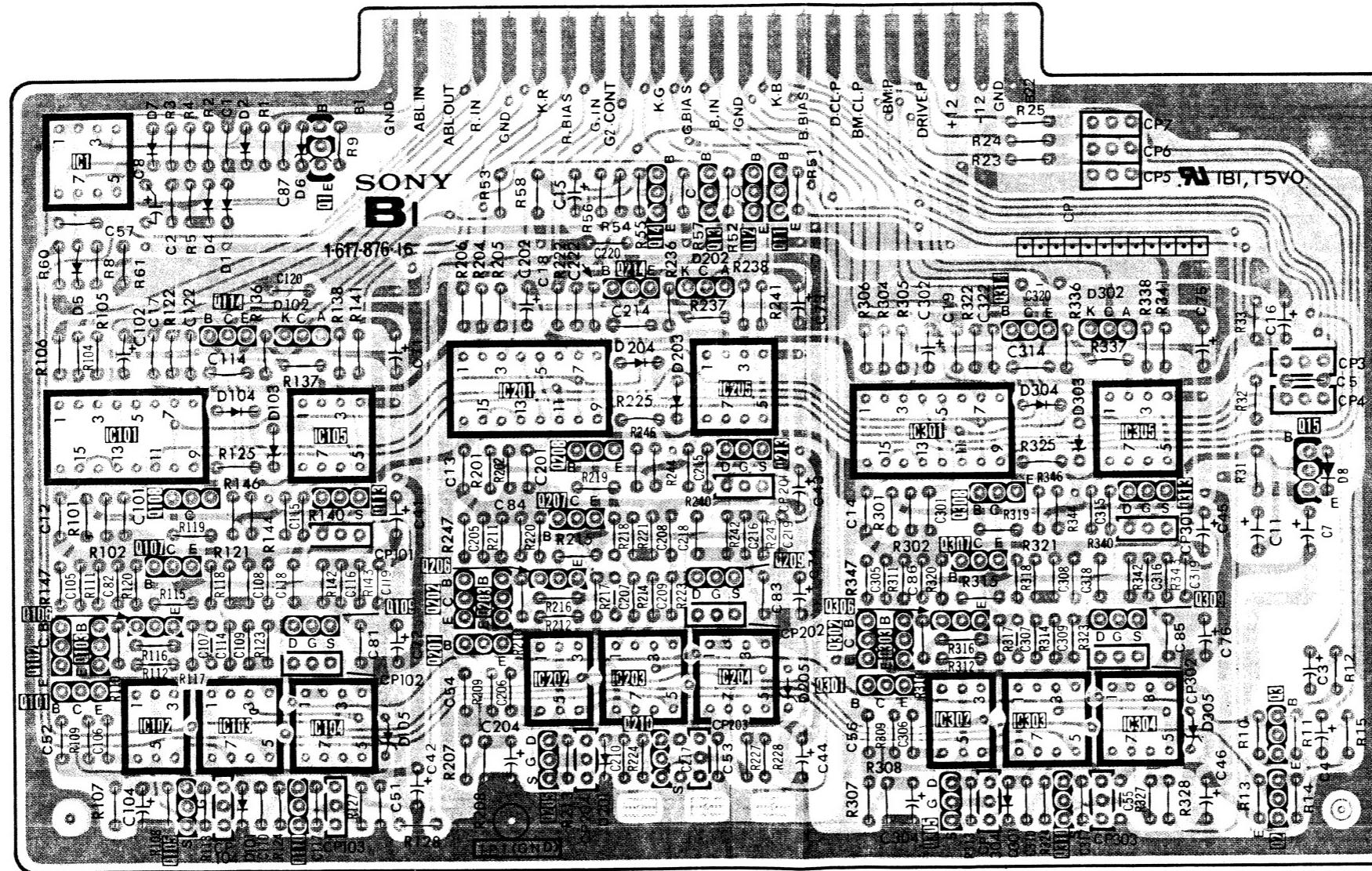
5-43

5-44

-  : Pattern from the side which enables seeing.
  -  : Pattern of the rear side.

BI board (DRIVE CONTROL, BEAM CURRENT CONTROL)

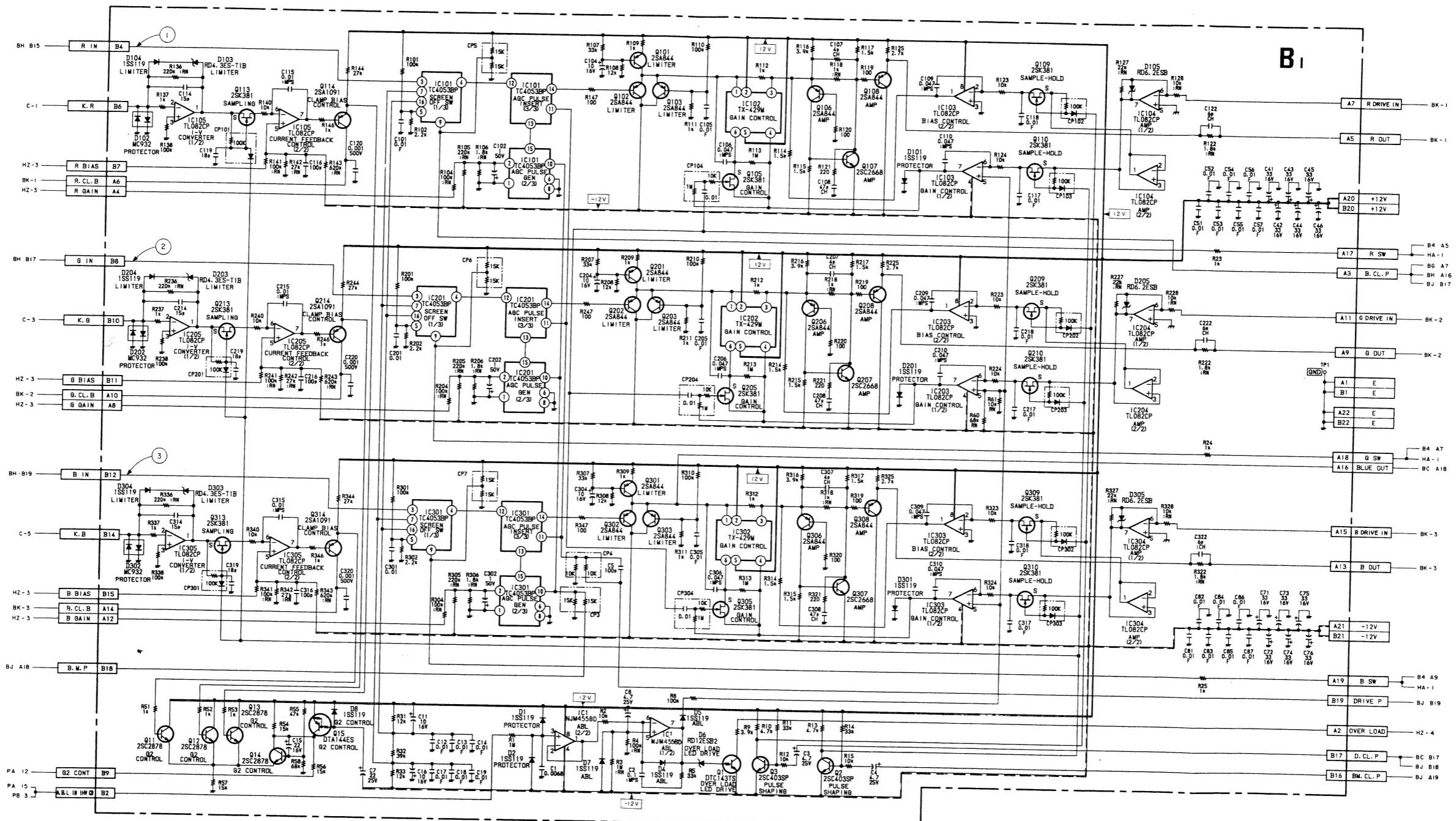
|    |         |       |     |         |                   |          |     |
|----|---------|-------|-----|---------|-------------------|----------|-----|
| IC | 101     | 105   |     | 201     | 205               | 301      | 305 |
|    | 102     | 103   | 104 | 202     | 203               | 302      | 304 |
| Q  |         | 114   | 1   |         | 214 <sup>14</sup> | 13 12 11 |     |
|    | 108     | 107   | 113 |         | 208               | 314      |     |
|    | 102 103 | 106   | 109 | 202 203 | 207               | 308      | 313 |
|    | 101     | 105   | 110 | 201     | 206               | 307      | 15  |
| D  | 7       |       |     |         | 209               |          |     |
|    | 5       | 4 1 2 | 6   |         | 210               |          |     |
|    | 104     | 102   |     |         | 302 303           |          |     |
|    | 103     | 105   |     |         | 301 305           |          |     |
| TP |         | TP 1  |     |         | 306               | 309      | 3   |
|    |         |       |     |         | 305               | 302      | 2   |
|    |         |       |     |         | 301               | 303      | 8   |

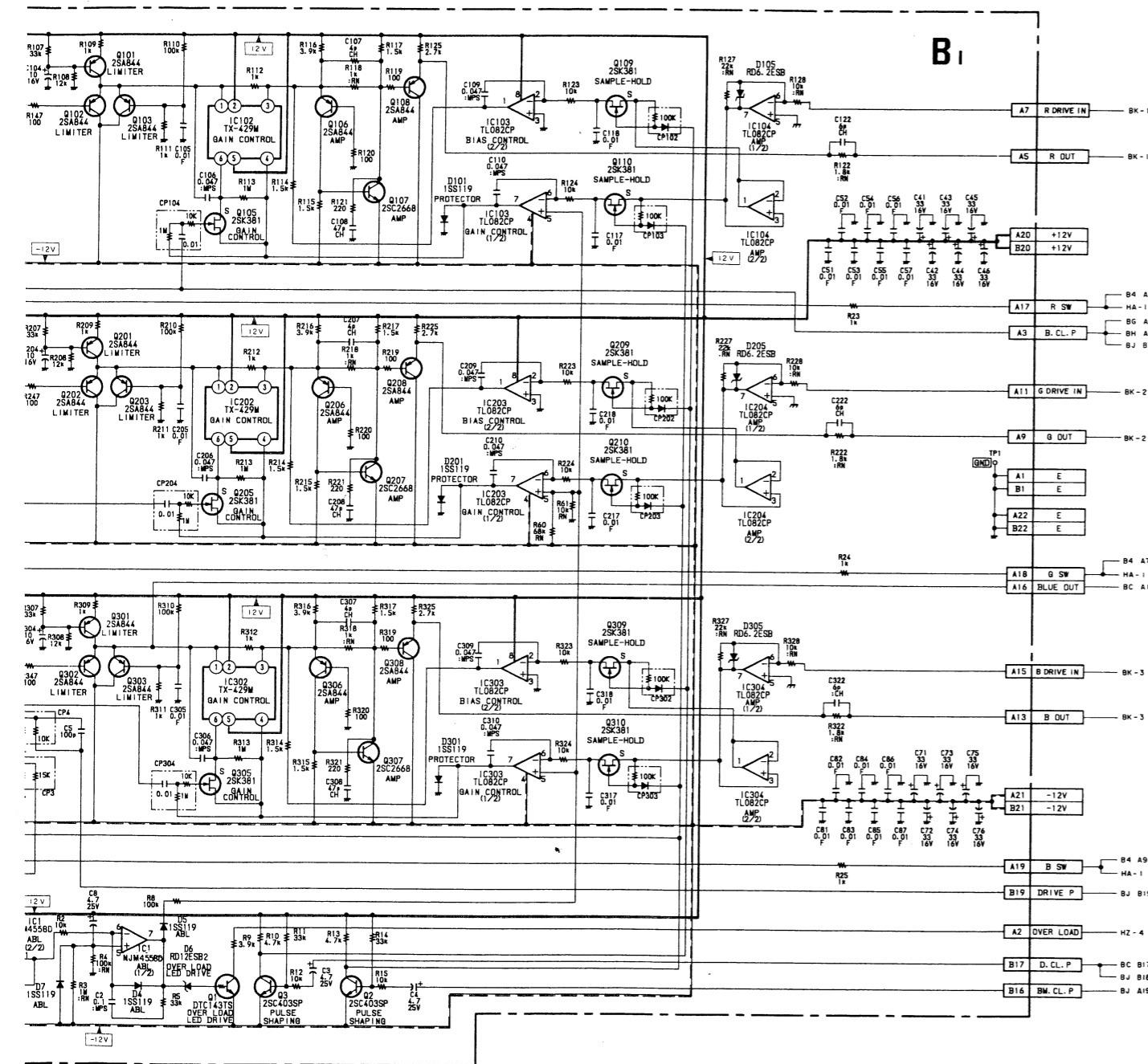


• : Pattern from the side which enables seeing.

• : Pattern of the rear side.

#### **BI board (DRIVE CONTROL, BEAM CURRENT CONTROL)**

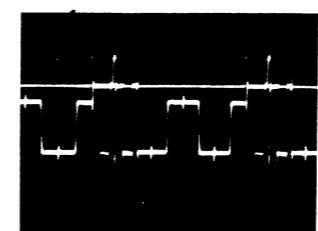




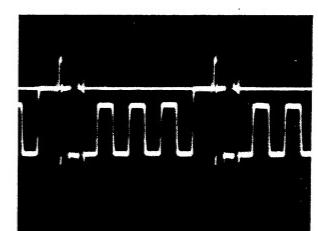
BI BOARD

|          |          |                          |
|----------|----------|--------------------------|
| IC1      | NJM4558D | ABL                      |
| 101(1/3) | TC4053BP | SCREEN OFF SW            |
| (2/3)    |          | AGC PULSE GEN            |
| (3/3)    |          | AGC PULSE INSERT         |
| 102      | TX-429M  | GAIN CONTROL             |
| 103(1/2) | TL082CP  | GAIN CONTROL             |
| (2/2)    |          | BIAS CONTROL             |
| 104      | TL082CP  | AMP                      |
| 105(1/2) | TL082CP  | I-V CONVERTER            |
| (2/2)    |          | CURRENT FEEDBACK CONTROL |
| 201(1/3) |          | SCREEN OFF SW            |
| (2/3)    | TC4053BP | AGC PULSE GEN            |
| (3/3)    |          | AGC PULSE INSERT         |
| 202      | TX-429M  | GAIN CONTROL             |
| 203(1/2) | TL082CP  | GAIN CONTROL             |
| (2/2)    |          | BIAS CONTROL             |
| 204      | TL082CP  | AMP                      |
| 205(1/2) | TL082CP  | I-V CONVERTER            |
| (2/2)    |          | CURRENT FEEDBACK CONTROL |
| 301(1/3) | TC4053BP | SCREEN OFF SW            |
| (2/3)    |          | AGC PULSE GEN            |
| (3/3)    |          | AGC PULSE INSERT         |
| 302      | TX-429M  | GAIN CONTROL             |
| 303(1/2) | TL082CP  | GAIN CONTROL             |
| (2/2)    |          | BIAS CONTROL             |
| 304      | TL082CP  | AMP                      |
| 305(1/2) | TL082CP  | I-V CONVERTER            |
| (2/2)    |          | CURRENT FEEDBACK CONTROL |
| Q1       | DTC143TS | OVER LOAD LED DRIVE      |
| 2        | 2SC403SP | PULSE SHAPING            |
| 3        | 2SC403SP | PULSE SHAPING            |
| 11       | 2SC2878  | G2 CONTROL               |
| 12       | 2SC2878  | G2 CONTROL               |
| 13       | 2SC2878  | G2 CONTROL               |
| 14       | 2SC2878  | G2 CONTROL               |
| 15       | DTA144ES | G2 CONTROL               |
| 101      | 2SA844   | LIMITER                  |
| 102      | 2SA844   | LIMITER                  |
| 103      | 2SA844   | LIMITER                  |
| 105      | 2SK381   | GAIN CONTROL             |
| 106      | 2SA844   | AMP                      |
| 107      | 2SC2668  | AMP                      |
| 108      | 2SA844   | AMP                      |
| 109      | 2SK381   | SAMPLE-HOLD              |

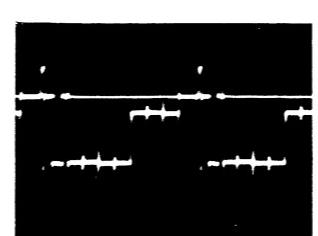
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|------|-------------|---------------------|
| 0110 | 2SK381      | SAMPLE-HOLD         |
| 113  | 2SK381      | SAMPLING            |
| 114  | 2SA1091     | CLAMP BIAS CONTROL  |
| 201  | 2SA844      | LIMITER             |
| 202  | 2SK381      | LIMITER             |
| 203  | 2SA844      | LIMITER             |
| 205  | 2SK381      | GAIN CONTROL        |
| 206  | 2SA844      | AMP                 |
| 207  | 2SC2668     | AMP                 |
| 208  | 2SA844      | AMP                 |
| 209  | 2SK381      | SAMPLE-HOLD         |
| 210  | 2SK381      | SAMPLE-HOLD         |
| 213  | 2SK381      | SAMPLING            |
| 214  | 2SA1091     | CLAMP BIAS CONTROL  |
| 301  | 2SA844      | LIMITER             |
| 302  | 2SA844      | LIMITER             |
| 303  | 2SA844      | LIMITER             |
| 305  | 2SK381      | GAIN CONTROL        |
| 306  | 2SA844      | AMP                 |
| 307  | 2SC2668     | AMP                 |
| 308  | 2SA844      | AMP                 |
| 309  | 2SK381      | SAMPLE-HOLD         |
| 310  | 2SK381      | SAMPLE-HOLD         |
| 313  | 2SK381      | SAMPLING            |
| 314  | 2SA1091     | CLAMP BIAS CONTROL  |
|      |             |                     |
| D1   | ISS119      | PROTECTOR           |
| 2    | ISS119      | PROTECTOR           |
| 4    | ISS119      | ABL                 |
| 5    | ISS119      | ABL                 |
| 6    | RD12ESB2    | OVER LOAD LED DRIVE |
| 7    | ISS119      | ABL                 |
| 8    | ISS119      | G2 CONTROL          |
| 101  | ISS119      | PROTECTOR           |
| 102  | MC932       | PROTECTOR           |
| 103  | RD4.3ES-T1B | LIMITER             |
| 104  | ISS119      | LIMITER             |
| D105 | RD6.2ESB    | LIMITER             |
| 201  | ISS119      | PROTECTOR           |
| 202  | MC932       | PROTECTOR           |
| 203  | RD4.3ES-T1B | LIMITER             |
| 204  | ISS119      | LIMITER             |
| D205 | RD6.2ESB    | LIMITER             |
| 301  | ISS119      | PROTECTOR           |
| 302  | MC932       | PROTECTOR           |
| 303  | RD4.3ES-T1B | LIMITER             |
| 304  | ISS119      | LIMITER             |
| D305 | RD6.2ESB    | LIMITER             |



① 1.0Vp-p(H)



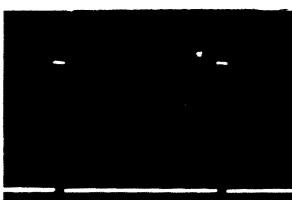
### ③ 1.0VR-P(H)



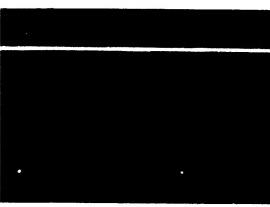
② 1.0Vp-p(H)

BJ BOARD

|         |            |                               |
|---------|------------|-------------------------------|
| IC1     | HD14538BP  | PIC SET PULSE GEN             |
| 2       | MC14001BCP | CROSS HATCH GEN               |
| 3       | TC4040BP   | V SYNC & DELAY                |
| 4       | TC4040BP   | V COUNT                       |
| 5       | TC504027BP | V SYNC & DELAY                |
| 6(1/2)  | TC504027BP | CHROMA CLAMP PULSE GEN        |
| (2/2)   |            | 2fH MULTI                     |
| 7       | TC504027BP | V COUNT                       |
| 8       | TC504027BP | 1H PULSE PROCESS              |
| 9(1/2)  | TC504027BP | V SYNC & DELAY                |
| (2/2)   | TC50427BP  | B.G.P GEN 2                   |
| (2/2)   | HD14538BP  | H CYCLE                       |
| 11(1/2) | HD14538BP  | CROSS HATCH GEN               |
| (2/2)   | HD14538BP  | SPLIT Y BLK, C BLK PULSE GEN  |
| 12      | HD14538BP  | Y CYCLE AGC & CLAMP PULSE GEN |
| 13(1/4) | MC14001BCP | CHROMA CLAMP PULSE GEN        |
| (2/4)   |            | Y.CL.P GEN                    |
| (3/4)   | MC14001BCP | B.G.P GEN 2                   |
| (4/4)   |            | RESIDUAL PULSE GEN            |
| 14(1/4) |            | SPLIT Y BLK: C BLK PULSE GEN  |
| (3/4)   |            | V CYCLY AGC & CLAMP PULSE GEN |
| (4/4)   |            | CROSS HATCH GEN               |
| 15      | MC14071BCP | V CYCLE AGC & CLAMP PULSE GEN |
| 16(1/4) |            | Y CYCLE AGC & CLAMP PULSE GEN |
| (2/4)   | MC14011BCP | Y OR V BLK, P                 |
| (3/4)   |            | SPLIT Y BLK, C BLK PULSE GEN  |
| (4/4)   | MC14011BCP | CROSS HATCH GEN               |
| 17      | TC4023BP   | CROSS HATCH GEN               |
| 18      |            | V COUNT                       |
| 19(1/4) |            | V SYNC & DELAY                |
| (2/4)   | MC14081BCP | 2fH MULTI                     |
| (3/4)   |            | 1H PULSE PROCESS              |
| 20      | MC14081BCP | V COUNT                       |
| 21(1/4) | MC14071BCP | V CYCLE AGC & CLAMP PULSE GEN |
| (2/4)   |            | V SYNC & DELAY                |
| (3/4)   |            | V COUNT                       |
| 22(1/4) | MC14071BCP | 2fH MULTI                     |
| (2/4)   |            | V COUNT                       |
| (3/4)   |            | V SYNC & DELAY                |



① 12Vp-p (H)  
② 12Vp-p (H)



③ 12Vp-p (V)

|           |             |                               |
|-----------|-------------|-------------------------------|
| IC23(1/3) | TC4073BP    | V SYNC & DELAY                |
|           |             | V COUNT                       |
| 24(1/5)   |             | V SYNC & DELAY                |
| (4/5)     | MC14069UBCP | CROSS HATCH GEN               |
| (2/5)     |             | V COUNT                       |
| (5/5)     |             | 1H PULSE PROCESS              |
| 25(1/6)   |             | INV                           |
| (2/6)     | MC14069UBCP | H OR V BLK.P                  |
| (3/6)     |             | Y CYCLE AGC & CLAMP PULSE GEN |
| (4/6)     |             | CROSS HATCH GEN               |
| 26        | MC14175BCP  | 1H PULSE PROCESS              |
| 27(1/3)   | MC14053BCP  | CLAMP PULSE CHANGE SW         |
| (2/3)     |             | CROSS HATCH GEN               |
| (3/3)     |             | H OR V DL SW                  |
| 28        | TC4520BP    | CROSS HATCH GEN               |
| 29(1/2)   | HD14538BP   | B.G.P GEN 1                   |
| (2/2)     |             | Y.CL.P GEN                    |

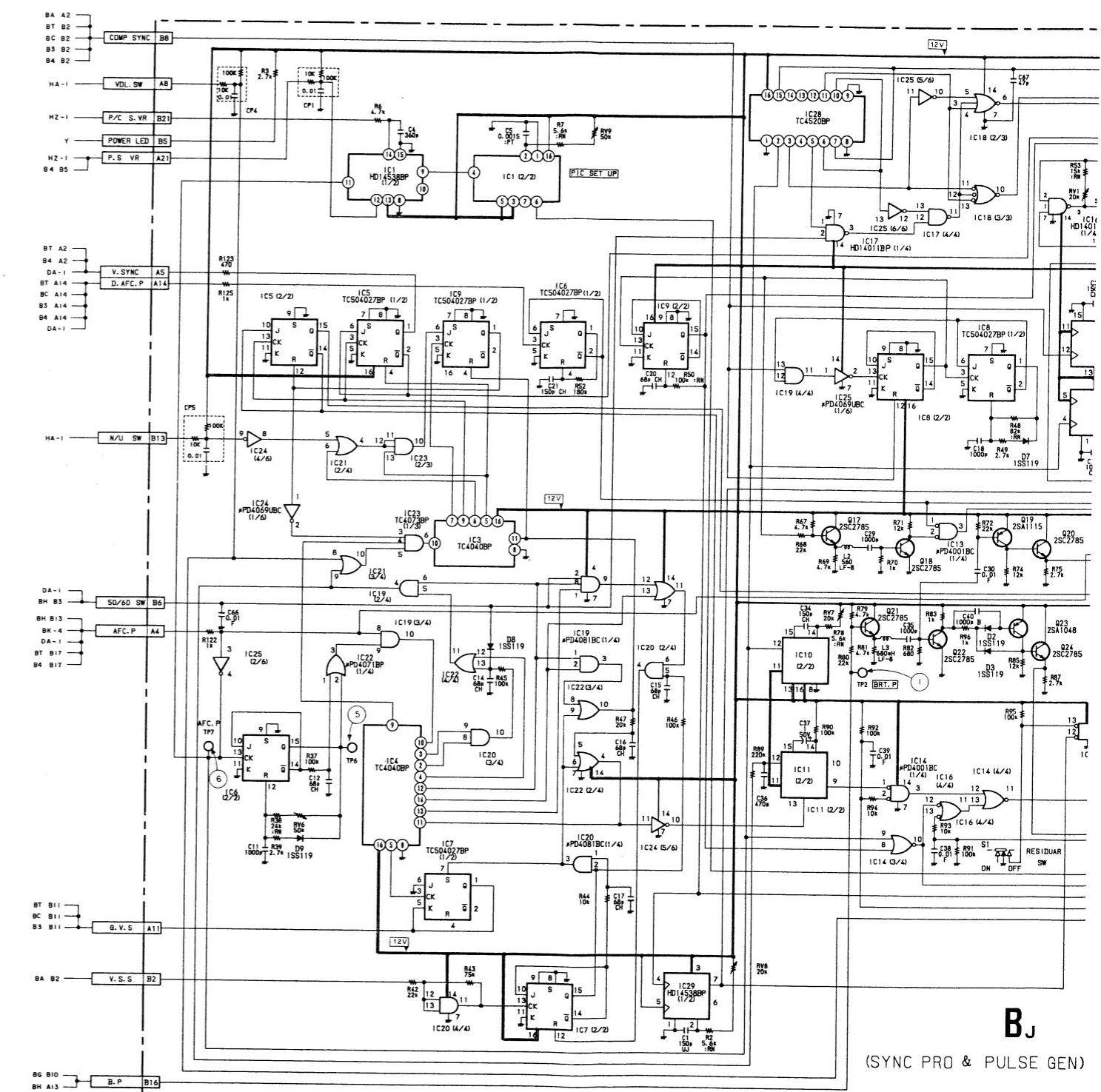


④ 12Vp-p (H)  
⑤ 12Vp-p (H)



⑥ 12Vp-p (H)

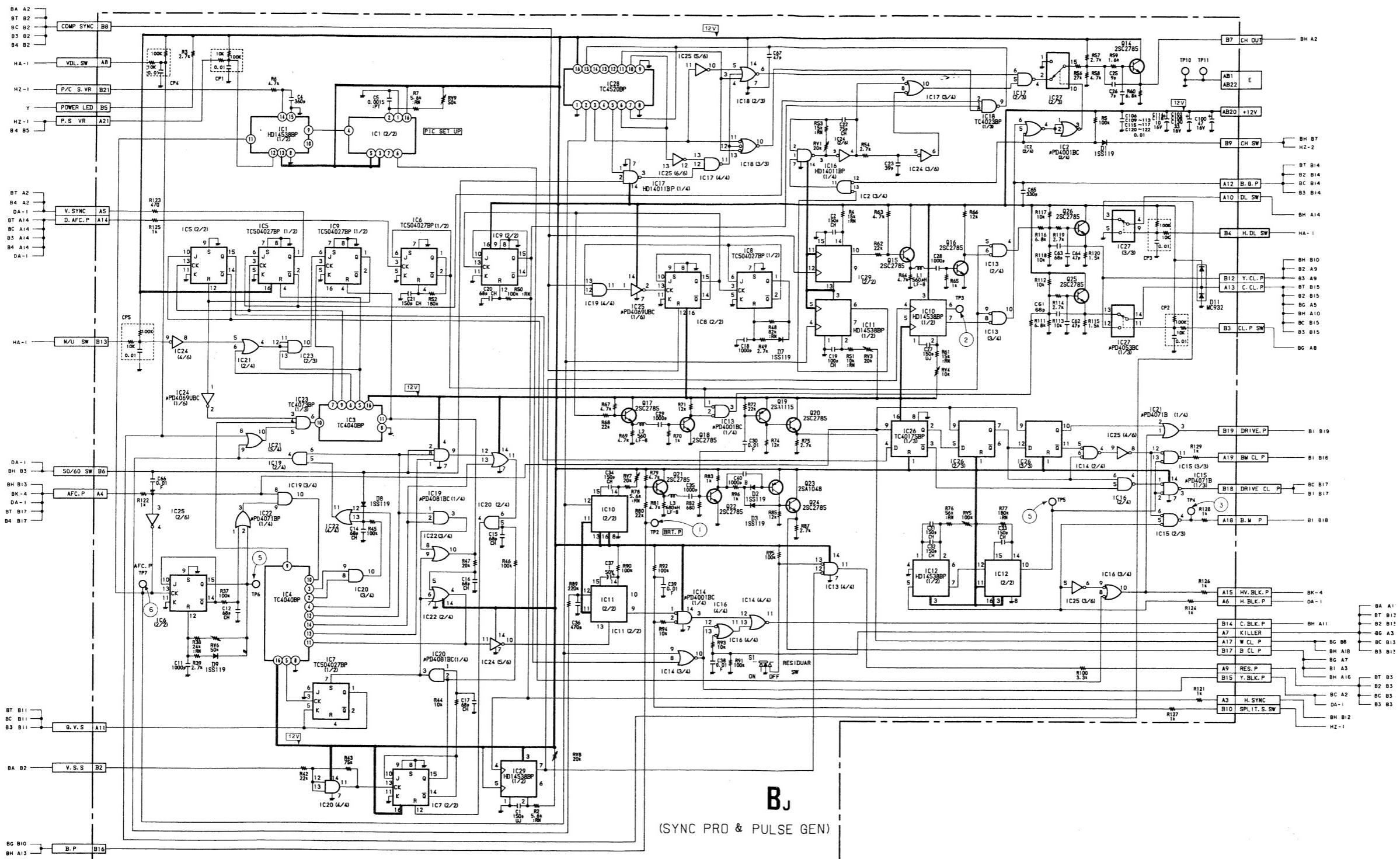
### BJ board (SYNC PROCESSING & PULSE GEN)



B

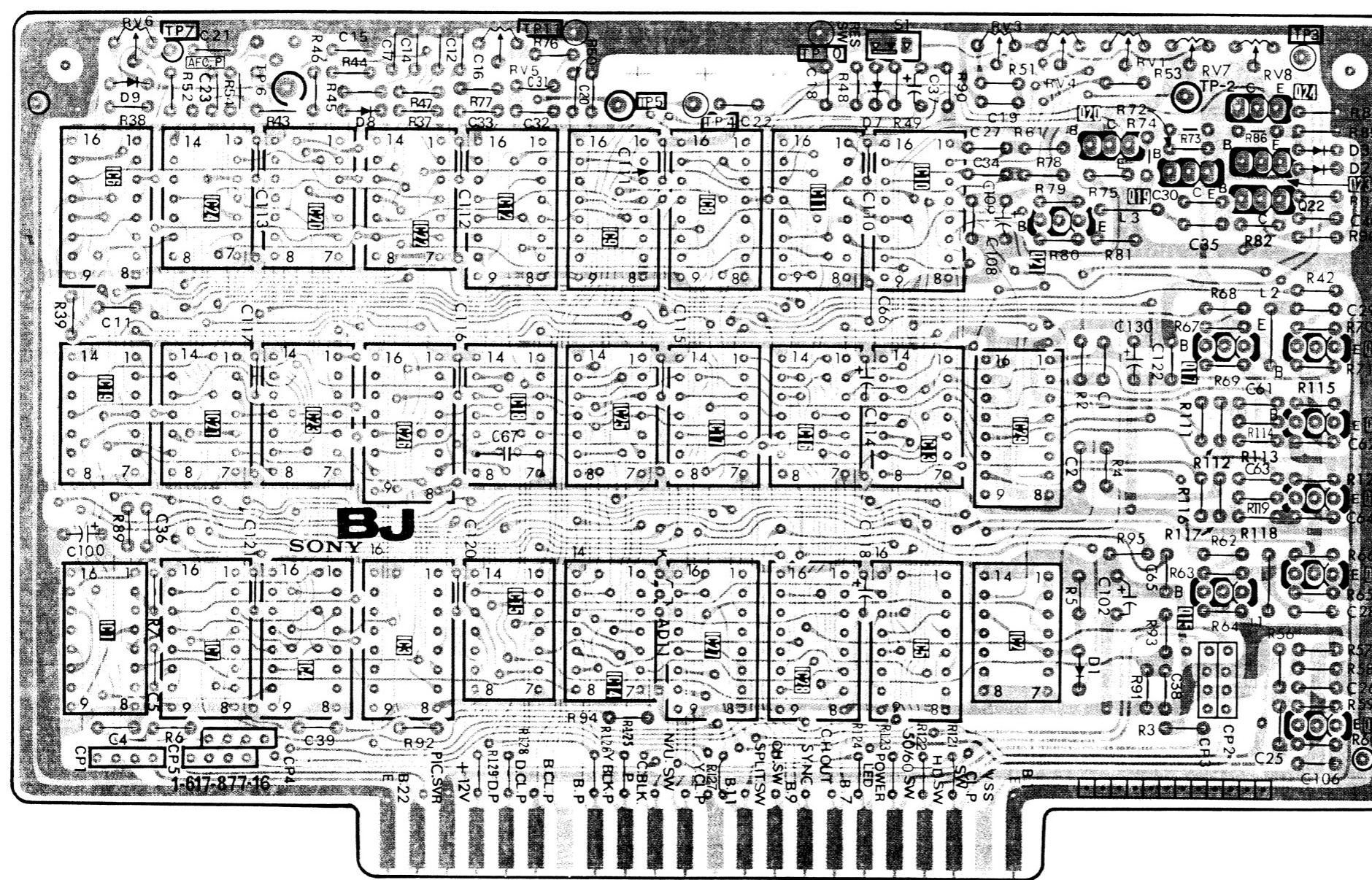
(SYNC PRO &amp; PULSE GEN)

## **BJ board (SYNC PROCESSING & PULSE GEN)**



**BJ board (SYNC PROCESSING & PULSE GEN)**

|           |              |               |               |               |                |               |               |                 |               |              |          |  |            |     |     |
|-----------|--------------|---------------|---------------|---------------|----------------|---------------|---------------|-----------------|---------------|--------------|----------|--|------------|-----|-----|
| IC        | 6<br>19<br>1 | 24<br>21<br>7 | 20<br>23<br>4 | 22<br>26<br>3 | 12<br>18<br>15 | 9<br>25<br>14 | 8<br>17<br>27 | 11.<br>16<br>28 | 10<br>13<br>5 | 29<br>2<br>2 |          |  |            |     |     |
| Q         |              |               |               |               |                |               |               |                 |               | 20<br>21     | 19<br>17 | 24<br>23<br>22<br>18<br>25<br>26<br>15<br>16<br>14 |            |     |     |
| D         | 9            |               | 8             |               |                |               |               | 7               |               |              |          | 3<br>2   |            |     |     |
| TP<br>ADJ | RV6          | TP7           |               | TP6           | RV5            | TPII          | TP5           | TP4             | TP10          | RV3          | RV4      | RV1  | RV7<br>TP2 | RV8 | TP3 |

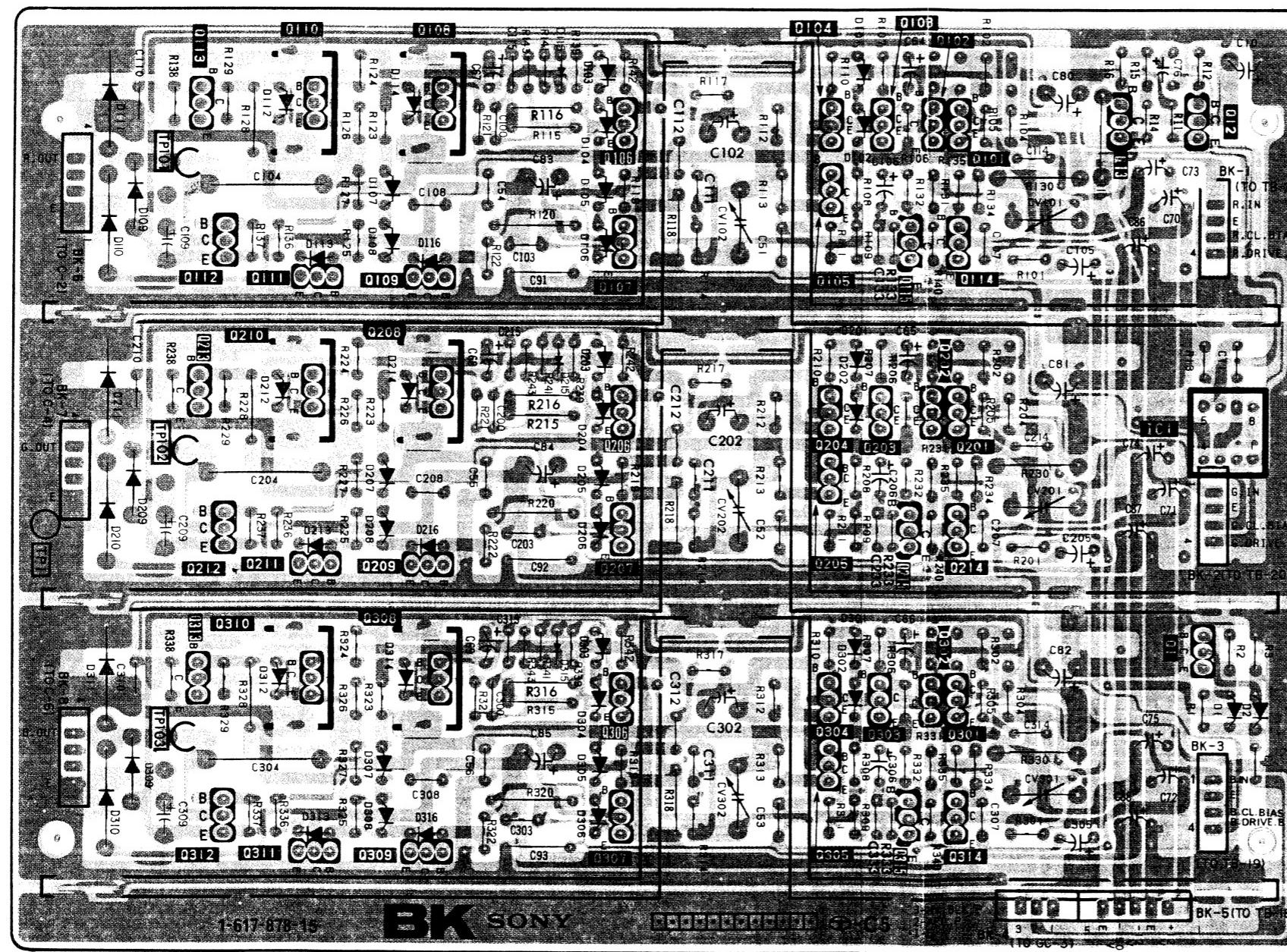


-  : Pattern from the side which enables seeing.

-  : Pattern of the rear side.

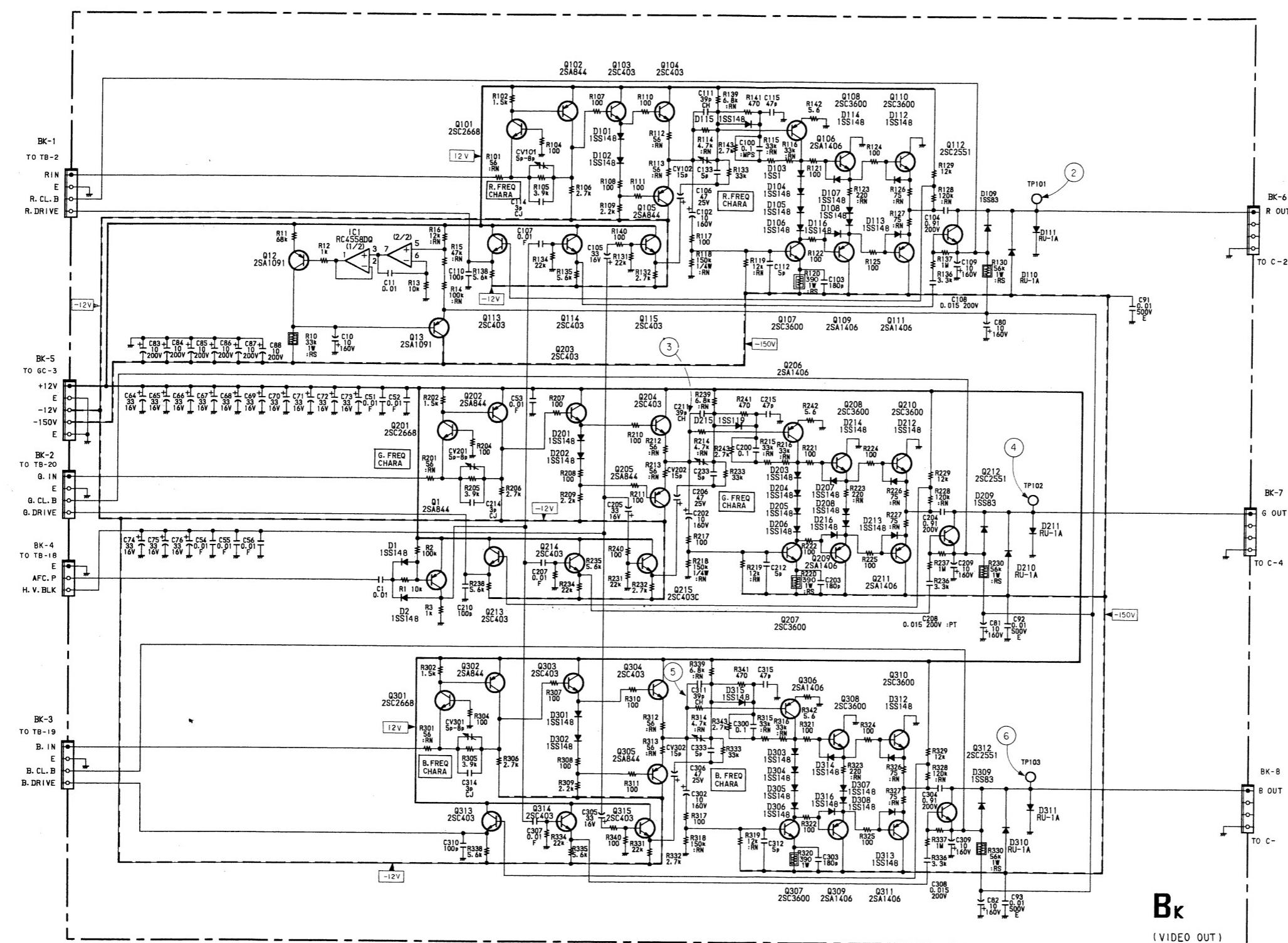
BK board (VIDEO OUT AMP)

| IC        | I13     | I10 | I08     | I06     | I04     | I03 | I02 | I01 | I3 | I2 |
|-----------|---------|-----|---------|---------|---------|-----|-----|-----|----|----|
| Q         | I12     | I11 | I09     | I07     | I05     | I03 | I15 | I14 |    |    |
|           | 213     | 210 | 208     | 206     | 204     | 203 | 202 | 201 |    |    |
|           | 212     | 211 | 209     | 207     | 205     | 215 | 214 |     |    |    |
|           | 313     | 310 | 308     | 306     | 304     | 303 | 302 | 301 |    |    |
|           | 312     | 311 | 309     | 307     | 305     | 315 | 314 |     |    |    |
| D         | I11     | I12 | I07 I14 | I15     | I04 I03 | I01 |     |     |    |    |
|           | I10 I09 | I13 | I08 I16 | I06 I05 | I02     |     |     |     |    |    |
|           | 211     | 212 | 207 214 | 215     | 204 203 | 201 |     |     |    |    |
|           | 210 209 | 213 | 208 216 | 216     | 206 205 | 202 |     |     |    |    |
|           | 311     | 312 | 307 314 | 315     | 304 303 | 301 |     |     |    |    |
|           | 310 309 | 313 | 308 316 | 316     | 306 305 | 302 |     |     |    |    |
| TP<br>ADJ | TPI01   |     |         |         | CV102   |     |     |     |    |    |
|           | TPI02   |     |         |         | CV202   |     |     |     |    |    |
|           | TPI03   |     |         |         | CV302   |     |     |     |    |    |
|           |         |     |         |         | CV101   |     |     |     |    |    |
|           |         |     |         |         | CV201   |     |     |     |    |    |
|           |         |     |         |         | CV301   |     |     |     |    |    |
| TP1       |         |     |         |         |         |     |     |     |    |    |

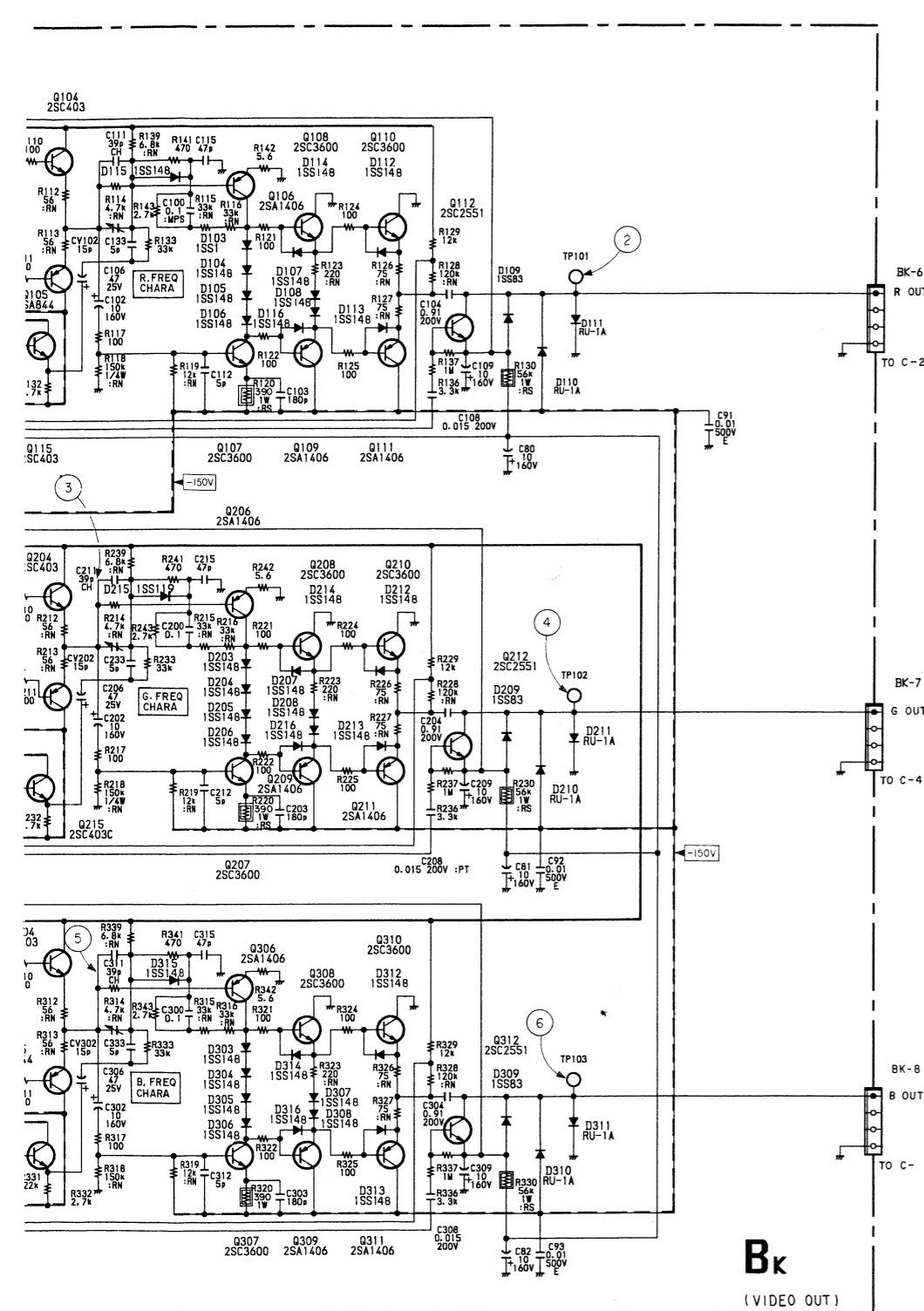


• : Pattern from the side which enables seeing.

• : Pattern of the rear side.

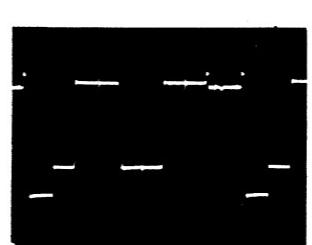


## BK BOARD



| IC1 | NJM4558D | LIPPLE FILTER     |
|-----|----------|-------------------|
| Q1  | 2SA844   | INVERTER          |
| 12  | 2SA1091  | LIPPLE FILTER     |
| 13  | 2SA1091  | LIPPLE FILTER     |
| 101 | 2SC2668  | R-PRE AMP.        |
| 102 | 2SA844   | R-PRE AMP.        |
| 103 | 2SC403SP | BUFF.             |
| 104 | 2SC403SP | BUFF.             |
| 105 | 2SA844   | BUFF.             |
| 106 | 2SA1406  | R-VIDEO OUT       |
| 107 | 2SC3600  | R-VIDEO OUT       |
| 108 | 2SC3600  | BUFF.             |
| 109 | 2SA1406  | BUFF.             |
| 110 | 2SC3600  | BUFF.             |
| 111 | 2SA1406  | BUFF.             |
| 112 | 2SC2551  | R-CLAMP           |
| 113 | 2SC403SP | R-CLAMP           |
| 114 | 2SC403SP | R-CLAMP           |
| 115 | 2SC403SP | BLANK PULSE BUFF. |
| 201 | 2SC2668  | G-PRE AMP.        |
| 202 | 2SA844   | G-PRE AMP.        |
| 203 | 2SC403SP | BUFF.             |
| 204 | 2SC403SP | BUFF.             |
| 205 | 2SA844   | BUFF.             |
| 206 | 2SA1406  | G-VIDEO OUT       |
| 207 | 2SC3600  | G-VIDEO OUT       |
| 208 | 2SC3600  | BUFF.             |
| 209 | 2SA1406  | BUFF.             |
| 210 | 2SC3600  | BUFF.             |
| 211 | 2SA1406  | BUFF.             |
| 212 | 2SC2551  | G-CLAMP           |
| 213 | 2SC403SP | G-CLAMP           |
| 214 | 2SC403SP | G-CLAMP           |
| 215 | 2SC403SP | BLANK PULSE BUFF. |
| 301 | 2SC2668  | B-PRE AMP.        |
| 302 | 2SA844   | B-PRE AMP.        |
| 303 | 2SC403SP | BUFF.             |
| 304 | 2SC403SP | BUFF.             |
| 305 | 2SA844   | BUFF.             |
| 306 | 2SA1406  | B-VIDEO OUT       |
| 307 | 2SC3600  | B-VIDEO OUT       |
| 308 | 2SC3600  | BUFF.             |
| 309 | 2SA1406  | BUFF.             |
| 310 | 2SC3600  | BUFF.             |
| 311 | 2SA1406  | BUFF.             |
| 312 | 2SC2551  | B-CLAMP           |
| 313 | 2SC403SP | B-CLAMP           |
| 314 | 2SC403SP | B-CLAMP           |
| 315 | 2SC403SP | BLANK PULSE BUFF. |

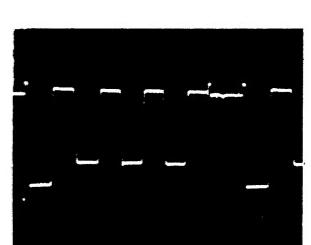
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|-----|--------|-----------|
| D1  | ISS148 | INVERTER  |
| 2   | ISS148 | INVERTER  |
| 101 | ISS148 | BIAS      |
| 102 | ISS148 | BIAS      |
| 103 | ISS148 | BIAS      |
| 104 | ISS148 | BIAS      |
| 105 | ISS148 | BIAS      |
| 106 | ISS148 | BIAS      |
| 107 | ISS148 | BIAS      |
| 108 | ISS148 | BIAS      |
| 109 | ISS83  | CLAMP     |
| 110 | RU-1A  | PROTECTOR |
| 111 | RU-1A  | PROTECTOR |
| 112 | ISS148 | PROTECTOR |
| 113 | ISS148 | PROTECTOR |
| 114 | ISS148 | PROTECTOR |
| 115 | ISS148 | PROTECTOR |
| 116 | ISS148 | PROTECTOR |
| 201 | ISS148 | BIAS      |
| 202 | ISS148 | BIAS      |
| 203 | ISS148 | BIAS      |
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| 207 | ISS148 | BIAS      |
| 208 | ISS148 | BIAS      |
| 209 | ISS83  | CLAMP     |
| 210 | RU-1A  | PROTECTOR |
| 211 | RU-1A  | PROTECTOR |
| 212 | ISS148 | PROTECTOR |
| 213 | ISS148 | PROTECTOR |
| 214 | ISS148 | PROTECTOR |
| 215 | ISS148 | PROTECTOR |
| 216 | ISS148 | PROTECTOR |
| 301 | ISS148 | BIAS      |
| 302 | ISS148 | BIAS      |
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| 310 | RU-1A  | PROTECTOR |
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| 315 | ISS148 | PROTECTOR |
| 316 | ISS148 | PROTECTOR |



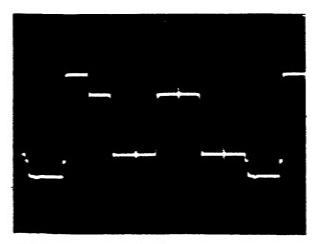
(1) 3.6Vp-p (H)



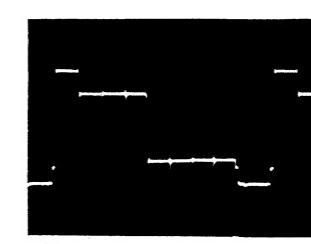
(3) 4.0Vp-p (H)



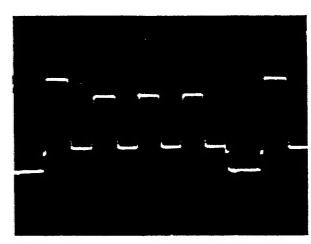
(5) 3.0Vp-p (H)



(2) 60Vp-p (H)



(4) 66Vp-p (H)



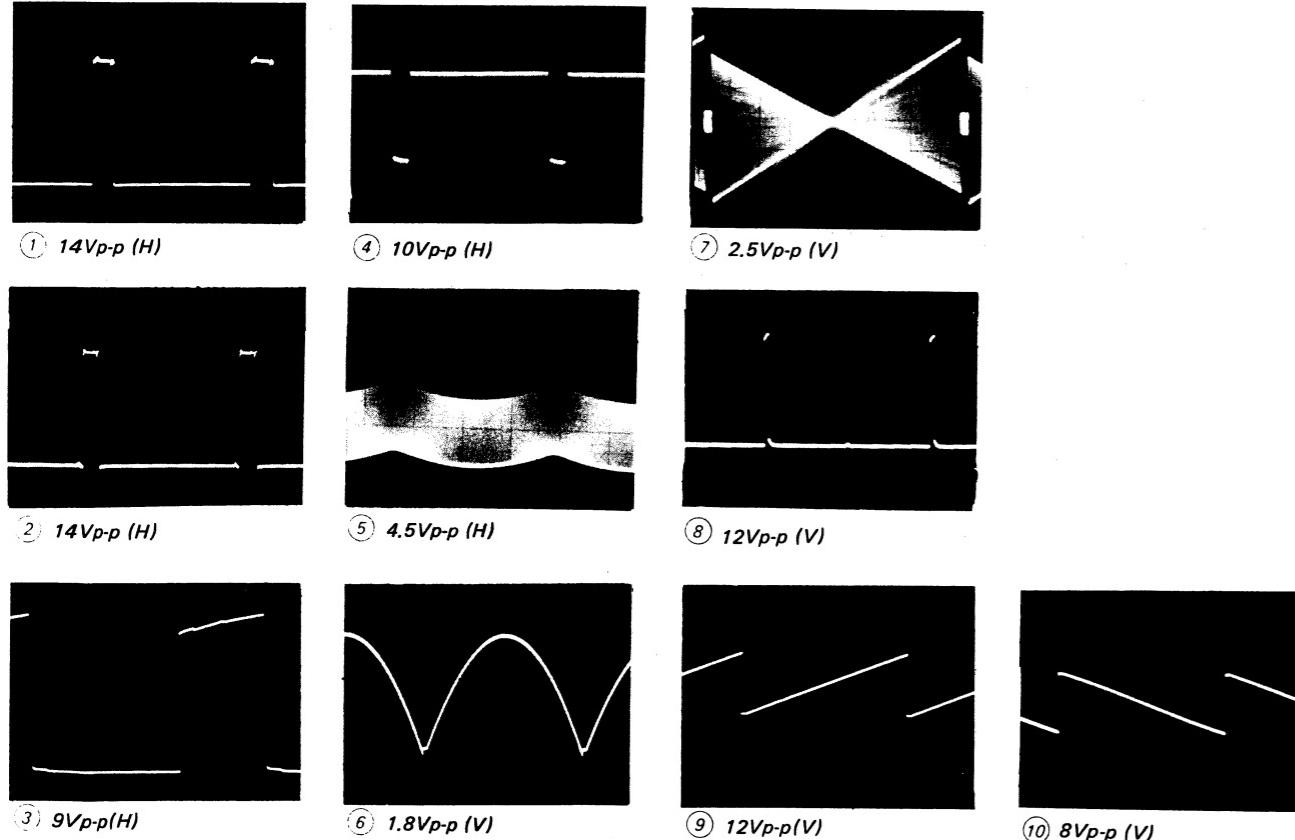
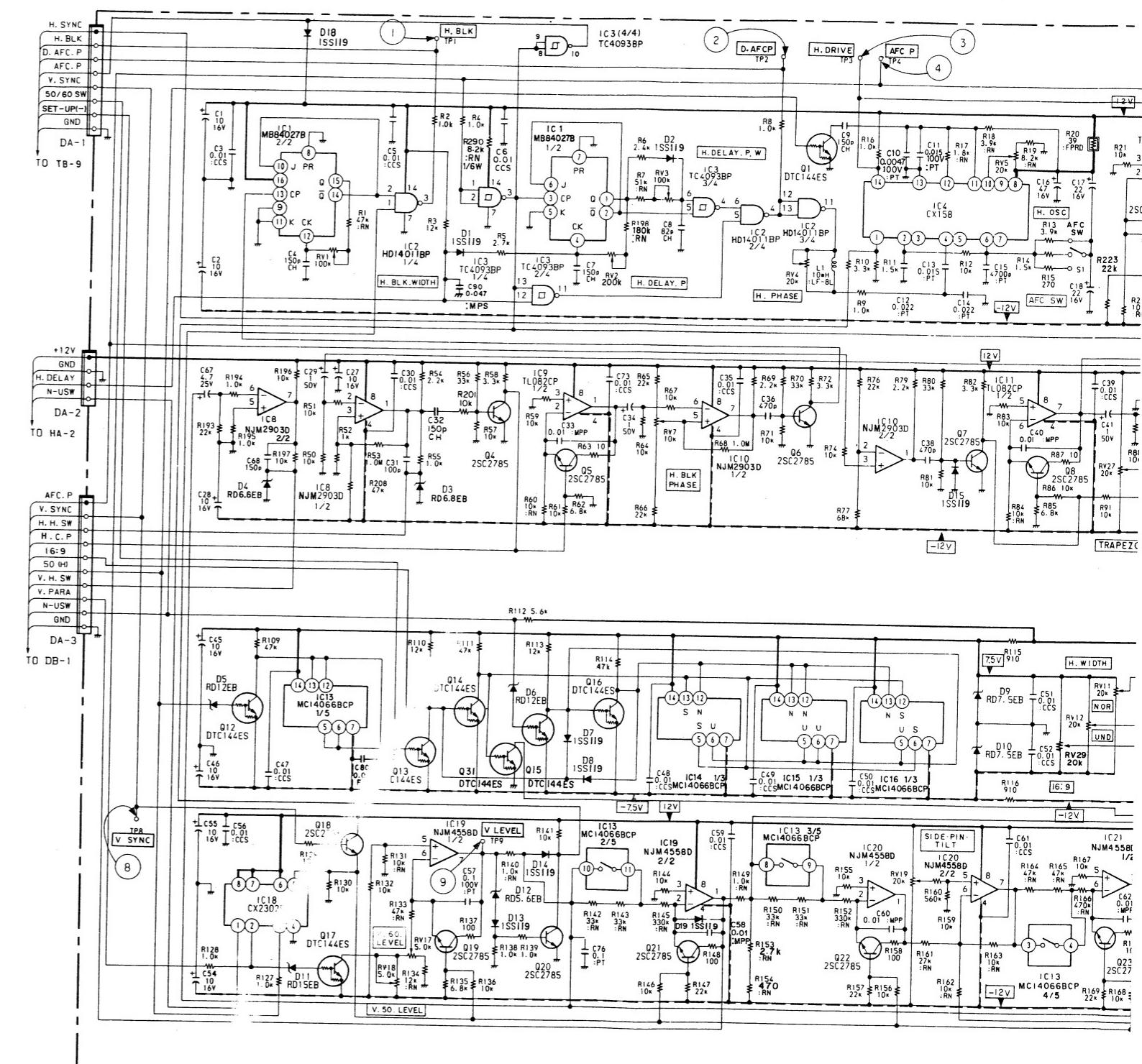
(6) 54Vp-p (H)

## DA BOARD

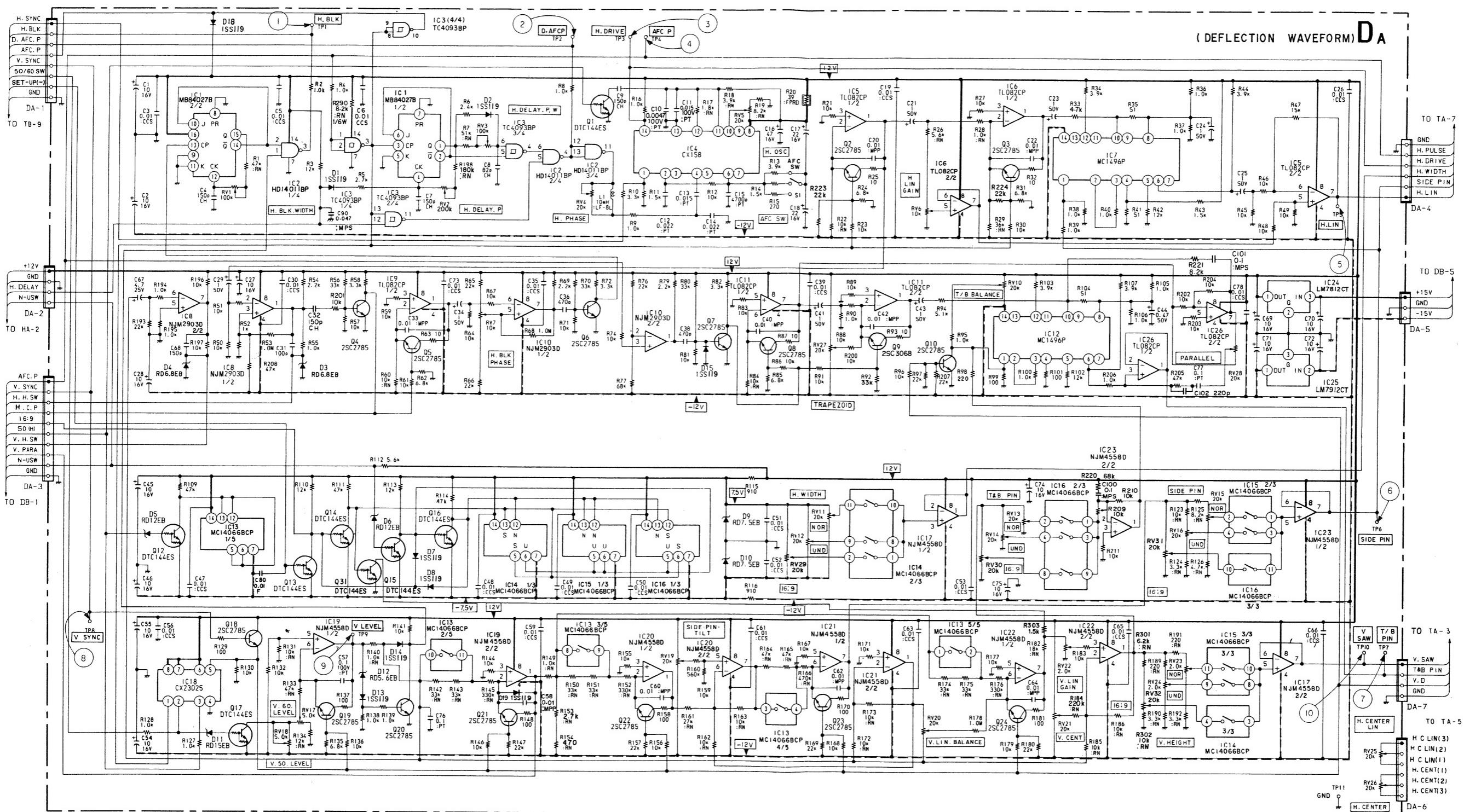
|     |           |                    |
|-----|-----------|--------------------|
| IC1 | MB84027B  | H. BLK. WIDTH      |
| 2   | HD14011BP | H. DELAY. POSITION |
| 3   | TC4093BP  | BUFFER             |
| 4   | CX-158    | H. OSC AFC         |
| 5   | TL082CP   | H. LIN. GEN.       |
| 6   | TL082CP   | H. LIN. GEN.       |
| 7   | MC1496P   | H. LIN. MOD.       |
| 8   | NJM2903D  | 1/2H, 1/2V. GEN.   |
| 9   | TL082CP   | H. BLK. PHASE      |
| 10  | NJM2903D  | T & B. H. PHASE    |
| 11  | TL082CP   | T & B. PIN. GEN.   |
| 12  | MC1496P   | T & B. PIN MOD.    |
| 13  | uPD4066BC | 50/60 SW.          |
| 14  | uPD4066BC | DEF. LEVEL. SW.    |
| 15  | uPD4066BC | DEF. LEVEL. SW.    |
| 16  | uPD4066BC | DEF. LEVEL. SW.    |
| 17  | NJM4558D  | BUFFER             |
| 18  | NJM4558D  | 50/60 SELECTOR     |
| 19  | NJM4558D  | V. SAWTOOTH. GEN.  |
| 20  | NJM4558D  | SIDE. PIN. GEN.    |
| 21  | NJM4558D  | SIDE. PIN. GEN.    |
| 22  | NJM4558D  | V. SAWTOOTH GEN.   |
| 23  | NJM4558D  | BUFFER             |
| 24  | uPC78M12H | +12V REG.          |
| 25  | uPC79M12H | -15V REG.          |
| 26  | TL082CP   | BUFFER             |
| Q1  | DTC144ES  | H. OSC. SW         |
| 2   | 2SC2785   | H. LIN. GEN        |
| 3   | 2SC2785   | H. LIN. GEN        |
| 4   | 2SC2785   | 1/2H. P. GEN.      |
| 5   | 2SC2785   | H. BLK. GEN.       |
| 6   | 2SC2785   | H. BLK. GEN.       |
| 7   | 2SC2785   | T & B PIN. PHASE   |

|    |          |                 |
|----|----------|-----------------|
| 8  | 2SC2785  | T & B PIN. GEN. |
| 9  | 2SC3068  | T & B PIN. GEN. |
| 10 | 2SC2785  | T & B PIN. MOD. |
| 12 | DTC144ES | 50/60 SW        |
| 13 | DTC144ES | SCAN. SW        |
| 14 | DTC144ES | SCAN. SW        |
| 15 | DTC144ES | SCAN. SW        |
| 16 | DTC144ES | SCAN. SW        |
| 17 | DTC144ES | 50/60 SW        |
| 18 | 2SC2785  | BUFFER          |
| 19 | 2SC2785  | V. SAW. GEN     |
| 20 | 2SC2785  | V. SAW. CLIP    |
| 21 | 2SC2785  | SIDE PIN GEN    |
| 22 | 2SC2785  | SIDE PIN GEN    |
| 23 | 2SC2785  | SIDE PIN GEN    |
| 24 | 2SC2785  | V. SAW GEN.     |
| 31 | DTC144ES | V. LIN GEN      |

## DA board (DEFLECTION WAVEFORM)



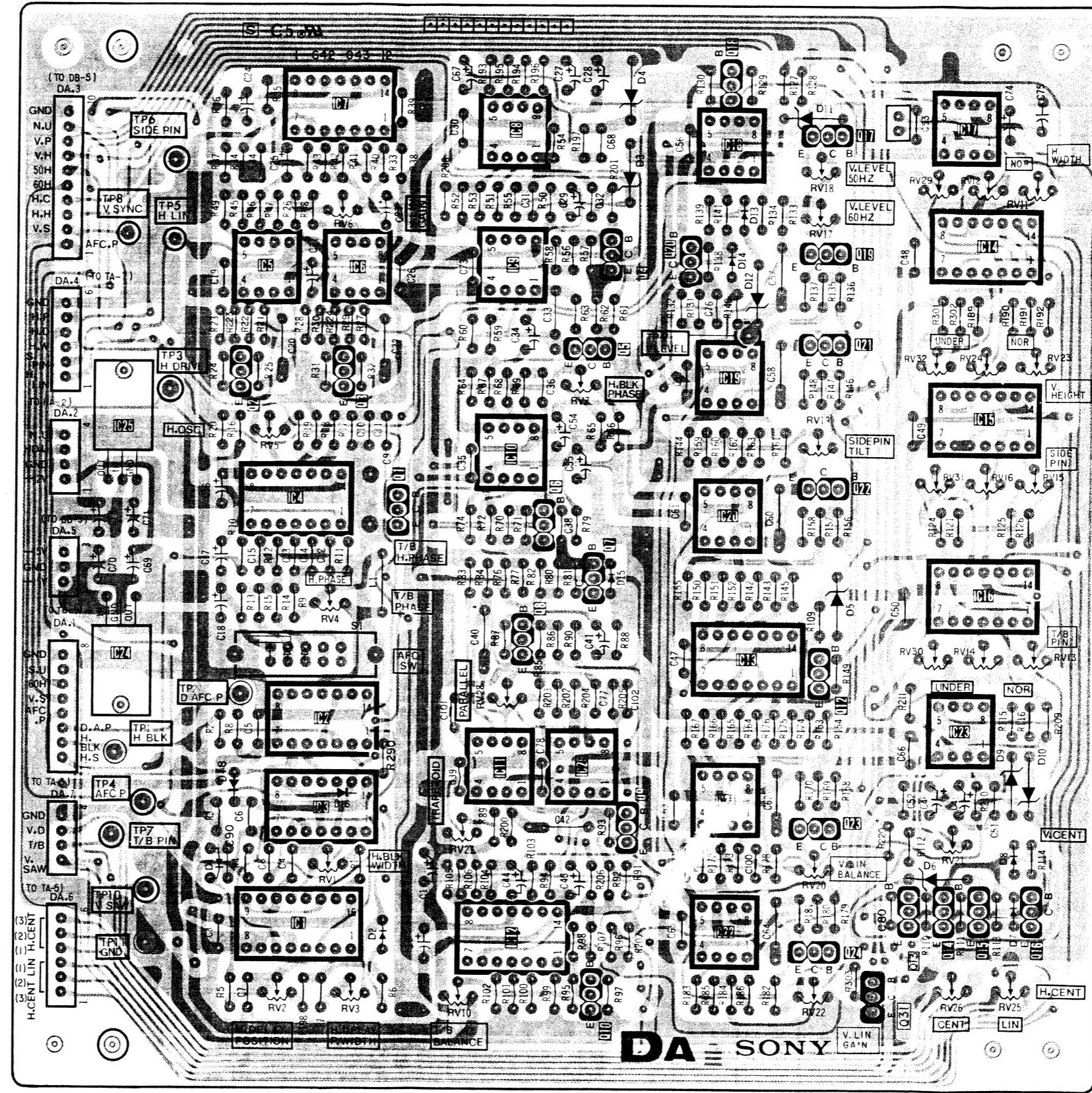
## DA board (DEFLECTION WAVEFORM)



| DA DA

## DA board (DEFLECTION WAVEFORM)

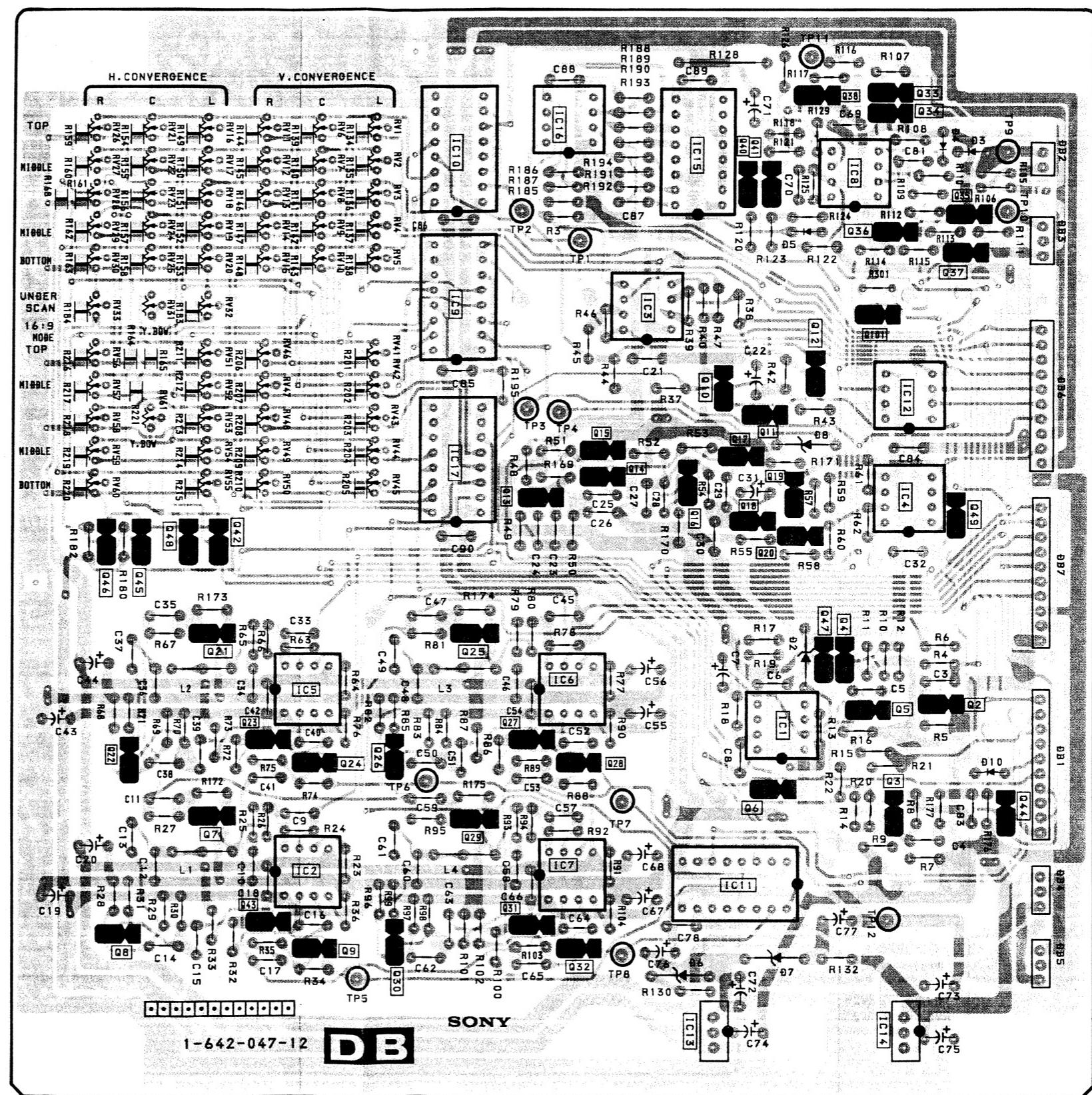
| I       | C       | Q                | D                              | TP                                  | ADJ                           |
|---------|---------|------------------|--------------------------------|-------------------------------------|-------------------------------|
| 7       | 8 18 17 | 18<br>17         | 4<br>11<br>3<br>13<br>14<br>12 | TP6<br>RV29<br>TP8<br>TP5           | RV18<br>RV12 RV11<br>RV6 RV17 |
| 5, 6, 9 | 14      | 4, 20<br>19      | 5<br>21<br>2 3                 | TP9<br>RV32 RV24 RV23<br>TP3<br>RV7 |                               |
| 25      | 15      |                  |                                |                                     | RV5                           |
| 10      |         |                  |                                |                                     | RV19                          |
| 4       | 20      | 1 22<br>6        |                                |                                     | RV31 RV16 RV15                |
|         | 16      | 7                | 5                              |                                     |                               |
| 13      |         | 8                |                                |                                     |                               |
| 24      |         | 12               |                                | RV30 RV14 RV13<br>TP2               |                               |
| 2       | 23      |                  |                                |                                     | RV28                          |
| 11, 26  |         |                  |                                |                                     |                               |
| 3       | 21      |                  | 16 9<br>18 10                  | TP1<br>TP4                          |                               |
|         | 9       | 23               | 1 8<br>6                       | TP7<br>RV27 RV21<br>RVI RV20        |                               |
|         | 11      |                  |                                |                                     |                               |
| 1       | 12 22   | 13, 14<br>15, 16 | 7                              | TP10                                |                               |
|         | 24      |                  | 2                              | TP11                                |                               |
|         | 31      |                  |                                |                                     | RV2 RV10 RV26                 |
|         | 10      |                  |                                |                                     | RV3 RV22 RV25                 |



- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

DB board (CONVERGENCE WAVEFORM)

| IC    | Q                       | D   | TP                 | ADJ |
|-------|-------------------------|-----|--------------------|-----|
| 16    | 38 33<br>34             |     | 11                 |     |
| 10 15 | 4 3                     | 9   | 26 21 16 11 6 1    |     |
| 8     | 40 41<br>35             | 2   | 27 22 17 12 7 2    |     |
|       | 36                      | 1   | 10 28 23 18 13 8 3 |     |
|       | 37                      |     | 29 24 19 14 9 4    |     |
|       | 101                     |     | 30 25 20 15 10 5   |     |
| 9 3   | 10 12                   |     | 33 31 32           |     |
| 12    | 11                      | 3 4 | 56 51 46 41        |     |
|       | 15 17                   | 8   | 57 52 47 42        |     |
| 17    | 13 14 16 19             |     | 59 54 49 44        |     |
| 4     | 18 20 49<br>46 45 48 42 |     | 60 55 50 45        |     |
|       | 21 25 47 4              | 2   |                    |     |
| 5 6   | 5 2                     |     |                    |     |
| 1     | 23 27                   |     |                    |     |
| 22    | 24 26 28                | 10* |                    |     |
|       | 6                       | 6   |                    |     |
| 7     | 7 29 3 44               | 7   |                    |     |
| 2 7   | 11                      | 12  |                    |     |
|       | 43 31                   |     |                    |     |
| 8     | 8 9 30 32               | 7   |                    |     |
|       | 6                       | 5   |                    |     |
| 13 14 |                         |     |                    |     |



1-642-047-12

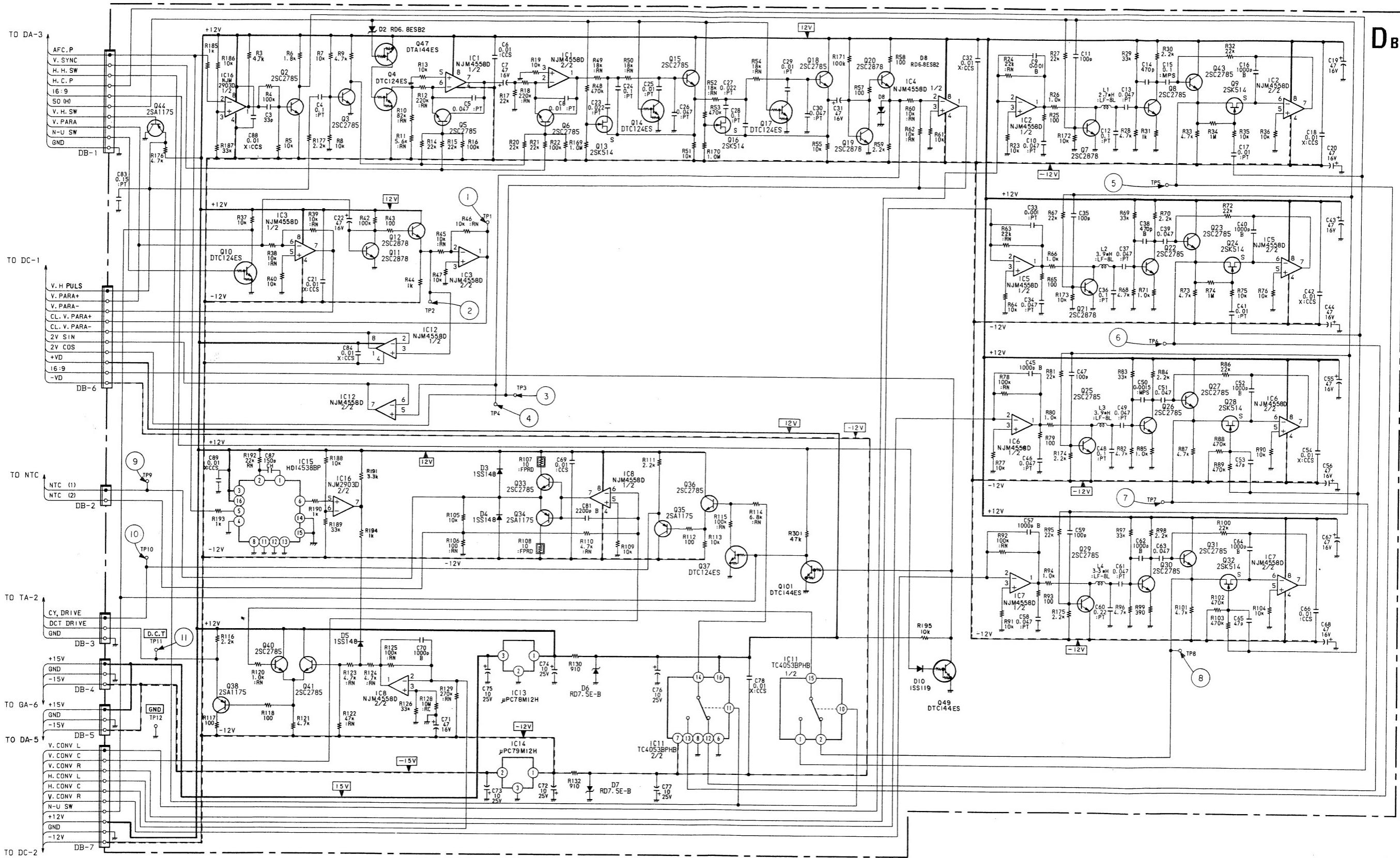
DB

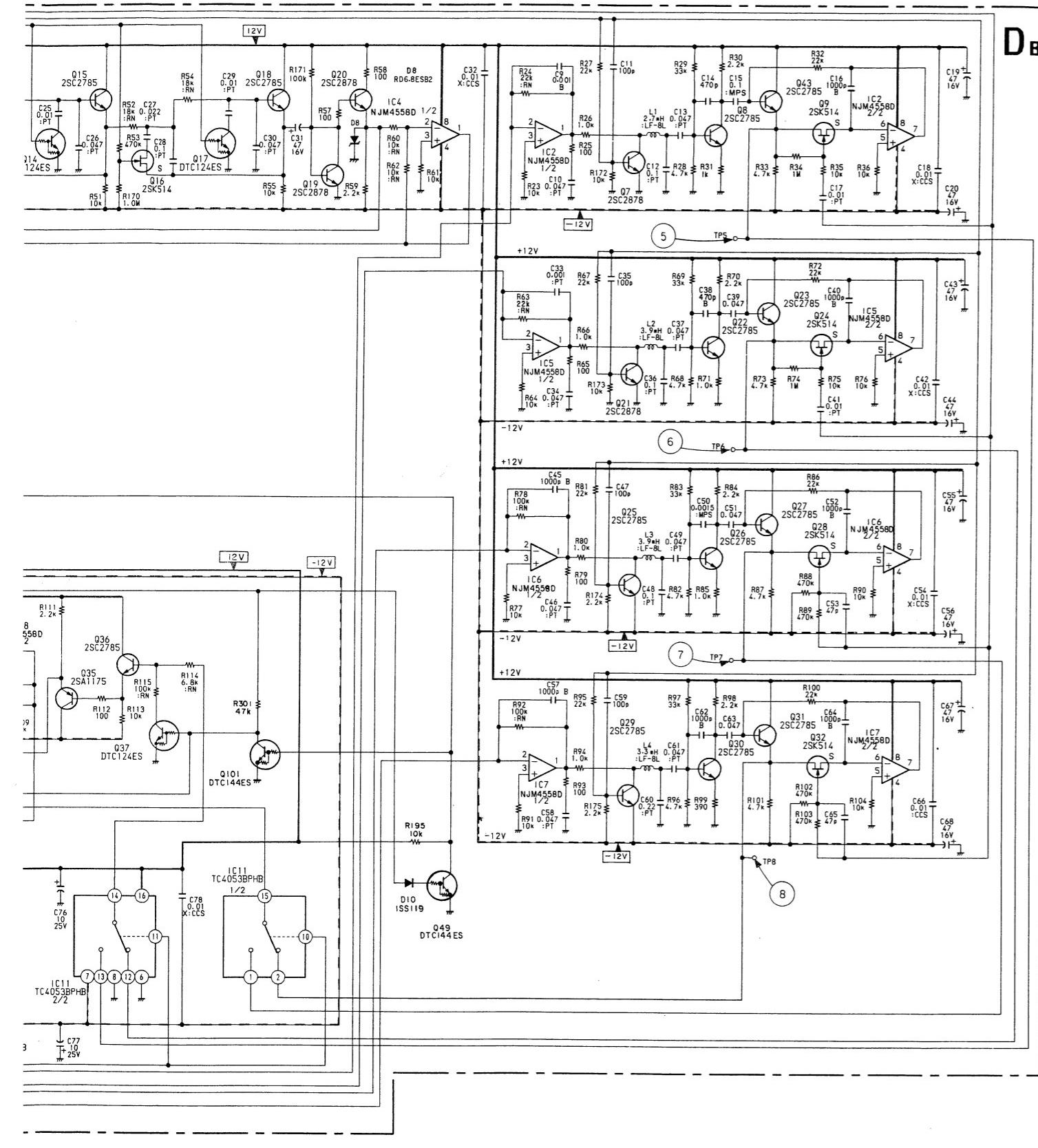
CAD

• : Pattern from the side which enables seeing.

• : Pattern of the rear side.

## DB board (CONVERGENCE WAVEFORM)



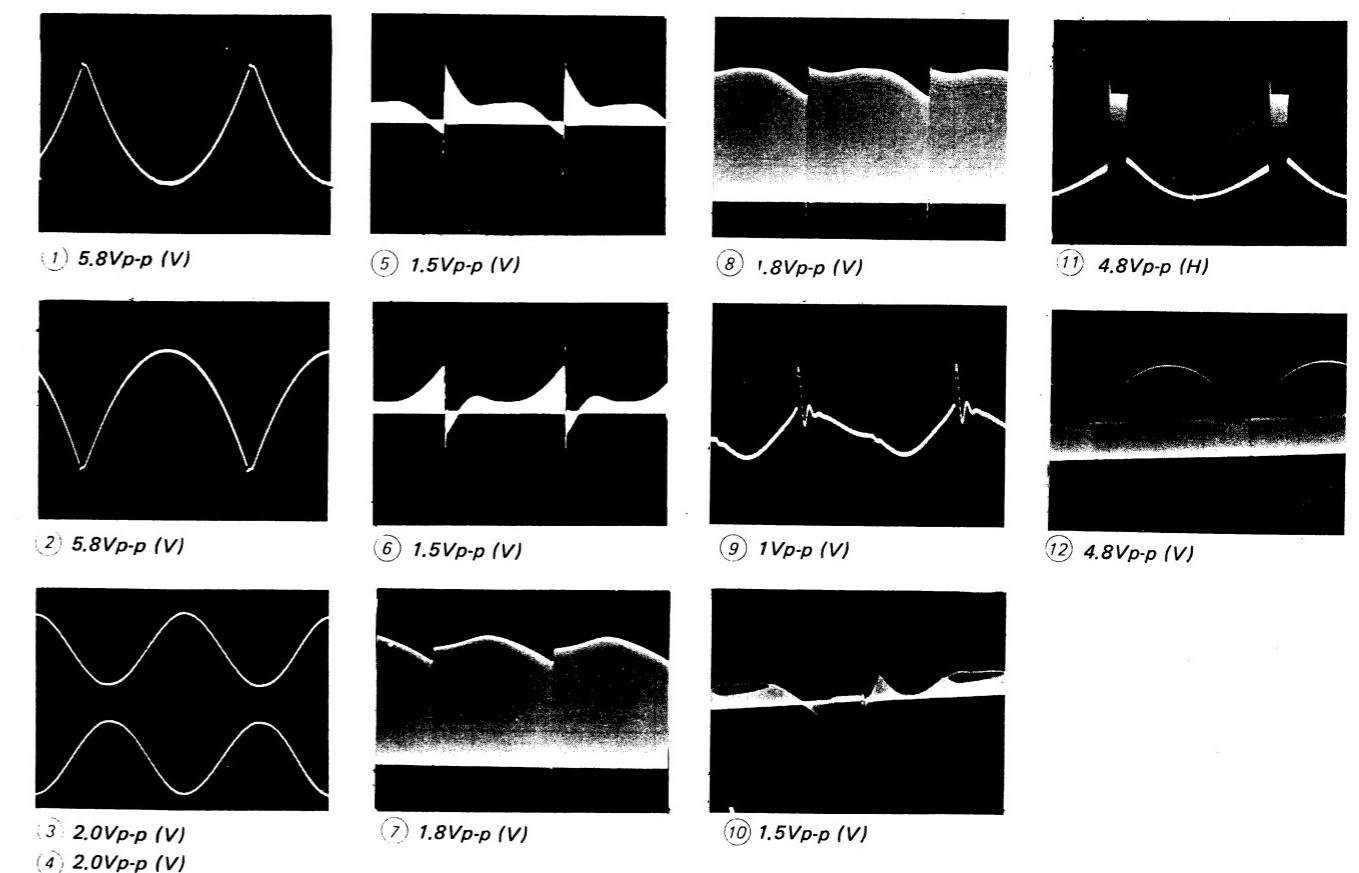


DB BOAR

|      |            |                |
|------|------------|----------------|
| IC 1 | NJM4558D   | 2XV GEN        |
| 2    | NJM4558D   | AMP & CLAMP    |
| 3    | NJM4558D   | INVERTER       |
| 4    | NJM4558D   | INVERTER       |
| 5    | NJM4558D   | AMP & CLAMP    |
| 6    | NJM4558D   | AMP & CLAMP    |
| 7    | NJM4558D   | AMP & CLAMP    |
| 8    | NJM4558D   | AMP            |
| 11   | TC4053BPHB | 1/2HV. SW      |
| 12   | NJM4558D   | BUFFER         |
| 13   | uPC78M12H  | +12V REG.      |
| 14   | uPC79M12H  | -12V REG.      |
| 15   | HD14538BP  | H.CONV CLAMP   |
| 16   | NJM2903D   | INVERTER       |
| Q 2  | 2SC2785    | H. SW          |
| 3    | 2SC2785    | 2XV. PULSE GEN |
| 4    | DTC124ES   | 50/60 SW       |
| 5    | 2SC2785    | 2XV SW         |
| 6    | 2SC2785    | 2XV SW         |
| 7    | 2SC2878    | H. SW          |
| 8    | 2SC2785    | AMP            |
| 9    | ZSK514     | H. CLAMP       |
| 10   | DTC124ES   | N/U SW         |
| 11   | 2SC2878    | CLAMP          |
| 12   | 2SC2878    | BUFFER         |
| 13   | ZSK514     | 50/60 SW       |
| 14   | DTC124ES   | 50/60 SW       |
| 15   | 2SC2785    | 50/60 SW       |
| 16   | ZSK514     | 50/60 SW       |
| 17   | DTC124ES   | 50/60 SW       |
| 18   | 2SC2785    | BUFFER         |
| 19   | 2SC2878    | CLAMP          |

|   |     |             |             |
|---|-----|-------------|-------------|
| Q | 20  | 2SC2878     | BUFFER      |
|   | 21  | 2SC2878     | H. SW       |
|   | 22  | 2SC2785     | AMP         |
|   | 23  | 2SC2785     | H. CLAMP    |
|   | 24  | 2SK514      | H. CLAMP    |
|   | 25  | 2SC2785     | H. SW       |
|   | 26  | 2SC2785     | AMP         |
|   | 27  | 2SC2785     | H. CLAMP    |
|   | 28  | 2SK514      | H. CLAMP    |
|   | 29  | 2SC2785     | H. SW       |
|   | 30  | 2SC2785     | AMP         |
|   | 31  | 2SC2785     | H. CLAMP    |
|   | 32  | 2SK514      | H. CLAMP    |
|   | 33  | 2SC2785     | N.T.C AMP   |
|   | 34  | 2SA1175     | N.T.C AMP   |
|   | 35  | 2SA1175     | BUFFER      |
|   | 36  | 2SC2785     | BUFFER      |
|   | 37  | DTC124ES    | N/U SW      |
|   | 38  | 2SA1175     | BUFFER      |
|   | 40  | 2SC2785     | ADDER       |
|   | 41  | 2SC2785     | ADDER       |
|   | 43  | 2SC2785     | H. CLAMP    |
|   | 44  | 2SA1175     | BUFFER      |
|   | 47  | DTA144ES    | 16:9 SW     |
|   | 49  | DTA144ES    | INVERTER    |
|   | 101 | DTA144ES    | N/U SW      |
| D | 2   | RD6.8ESB2   | LEVEL SHIFT |
|   | 3   | ISS148      | PROTECTER   |
|   | 4   | ISS148      | PROTECTER   |
|   | 5   | ISS148      | DC STOPPER  |
|   | 6   | RD7.5E-B3TN | +7.5V REG.  |
|   | 7   | RD7.5E-B3TN | -7.5V REG.  |
|   | 8   | RD6.8ESB2   | LIMITTER    |
|   | 10  | ISS148      | DC STOPPER  |

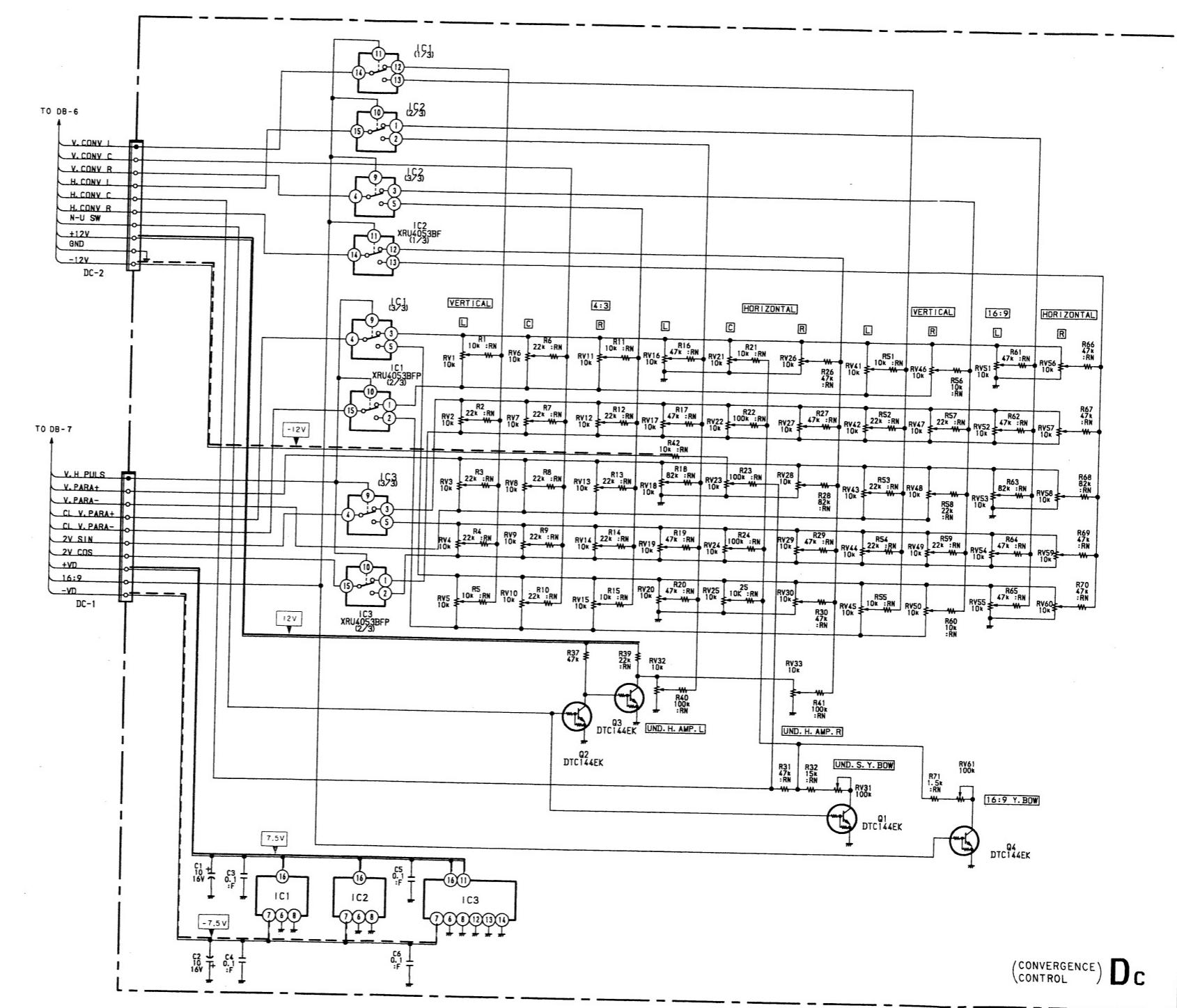
## 5. DIAGRAMS

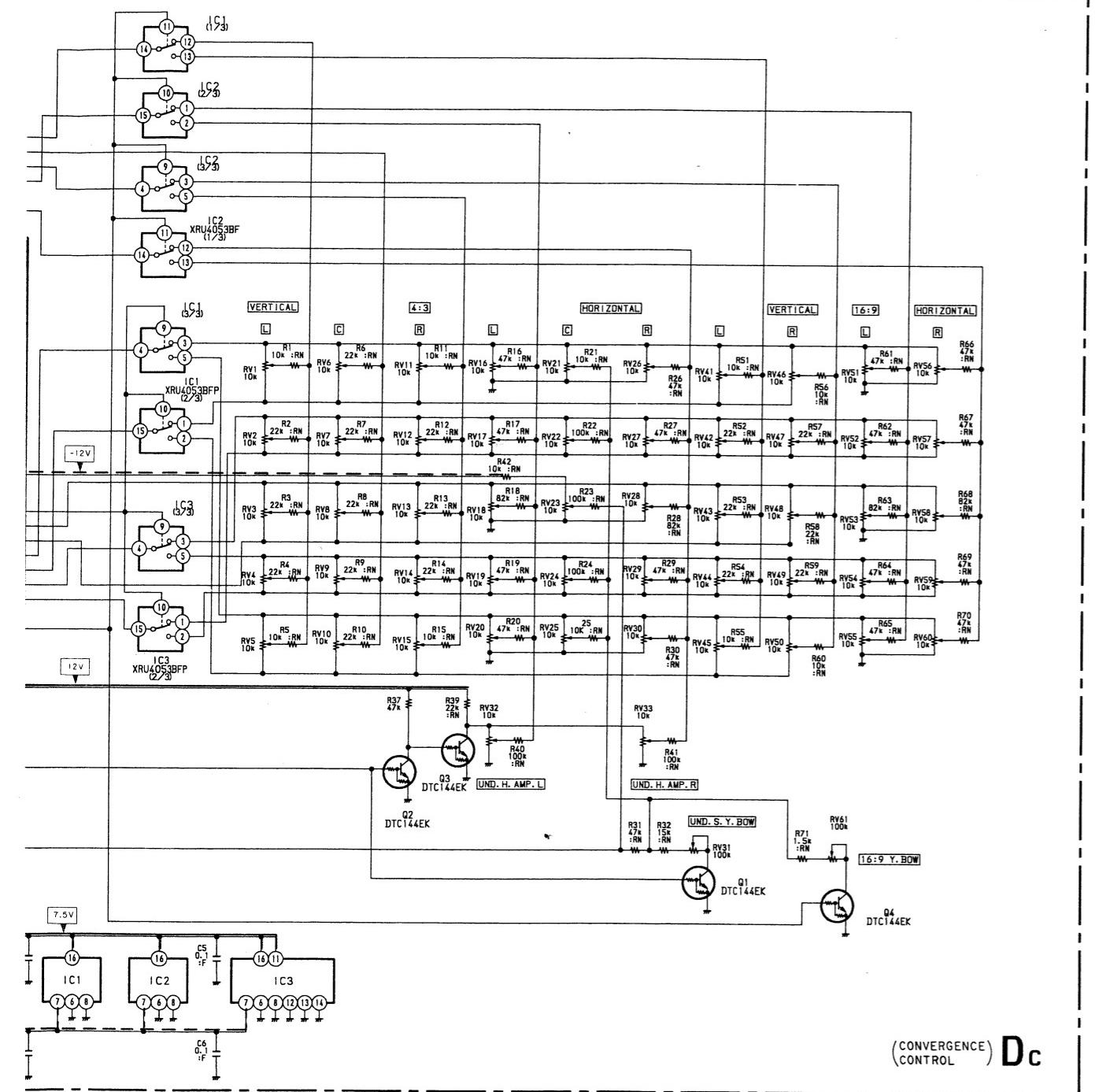


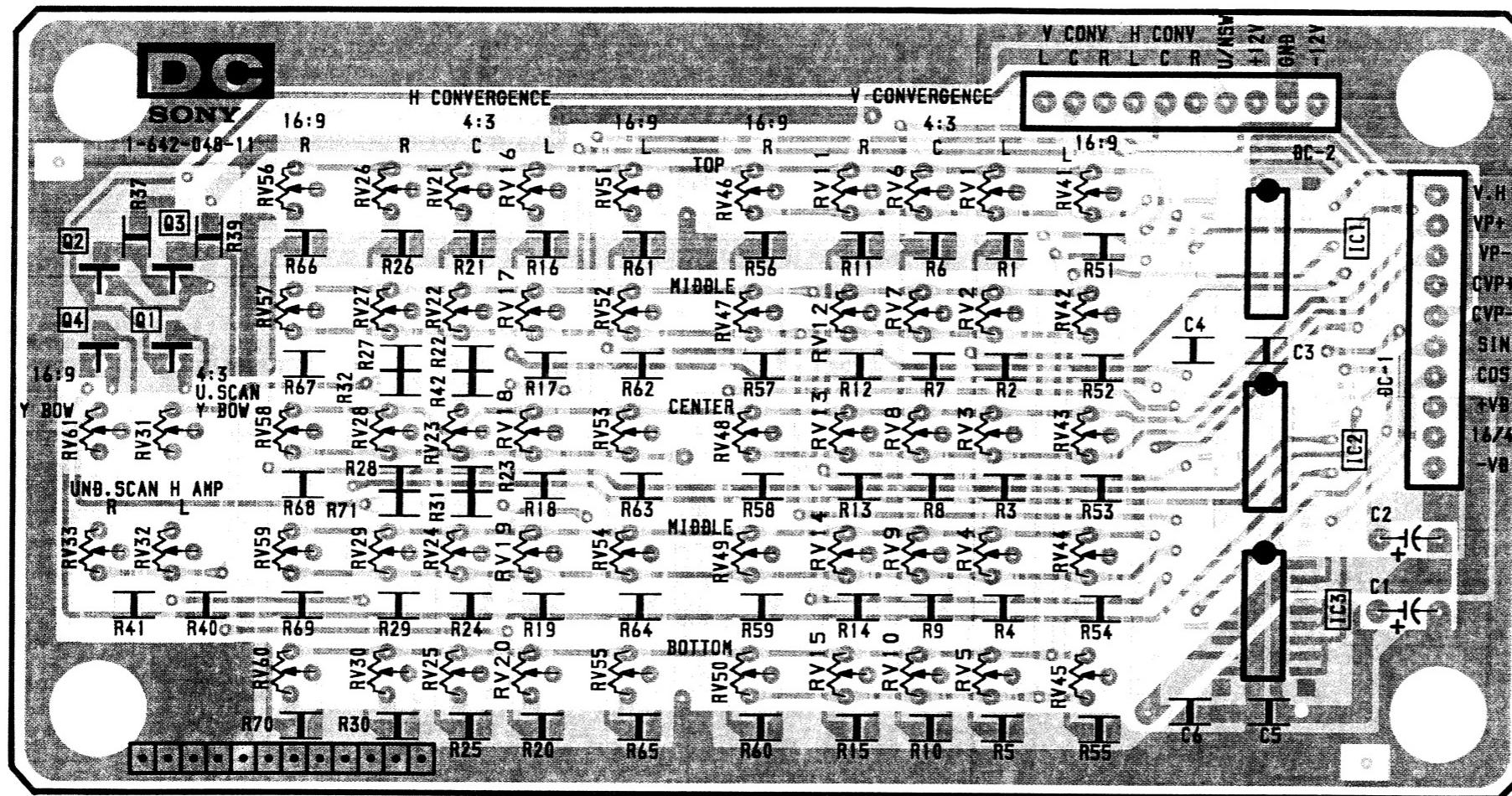
## DC board (CONVERGENCE CONTROL)

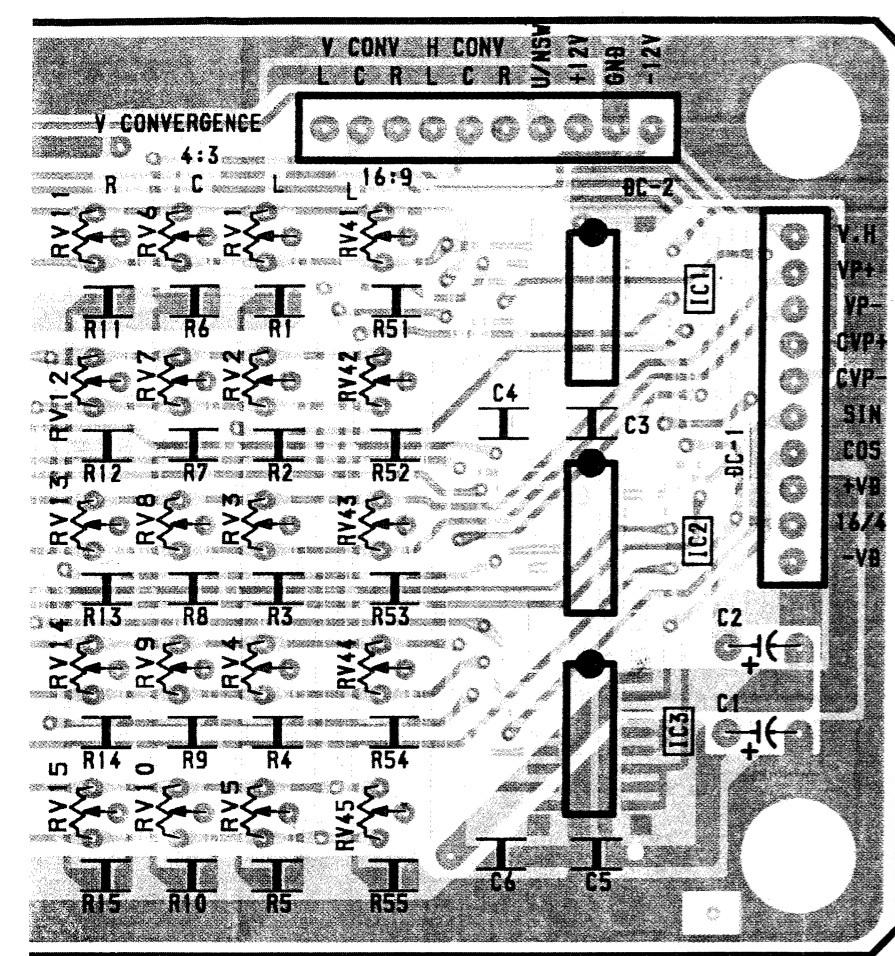
|      |           |              |
|------|-----------|--------------|
| IC 1 | XRU4053BF | 1 / 2 HV. SW |
| 2    | XRU4053BF | 1 / 2 HV. SW |
| 3    | XRU4053BF |              |
|      |           |              |
| 01   | DTC144EK  | UND. Y BOW   |
| 2    | DTC144EK  | UND. H. AMP  |
| 3    | DTC144EK  | UND. H. AMP  |
| 4    | DTC144EK  |              |

5. DIAGRAMS







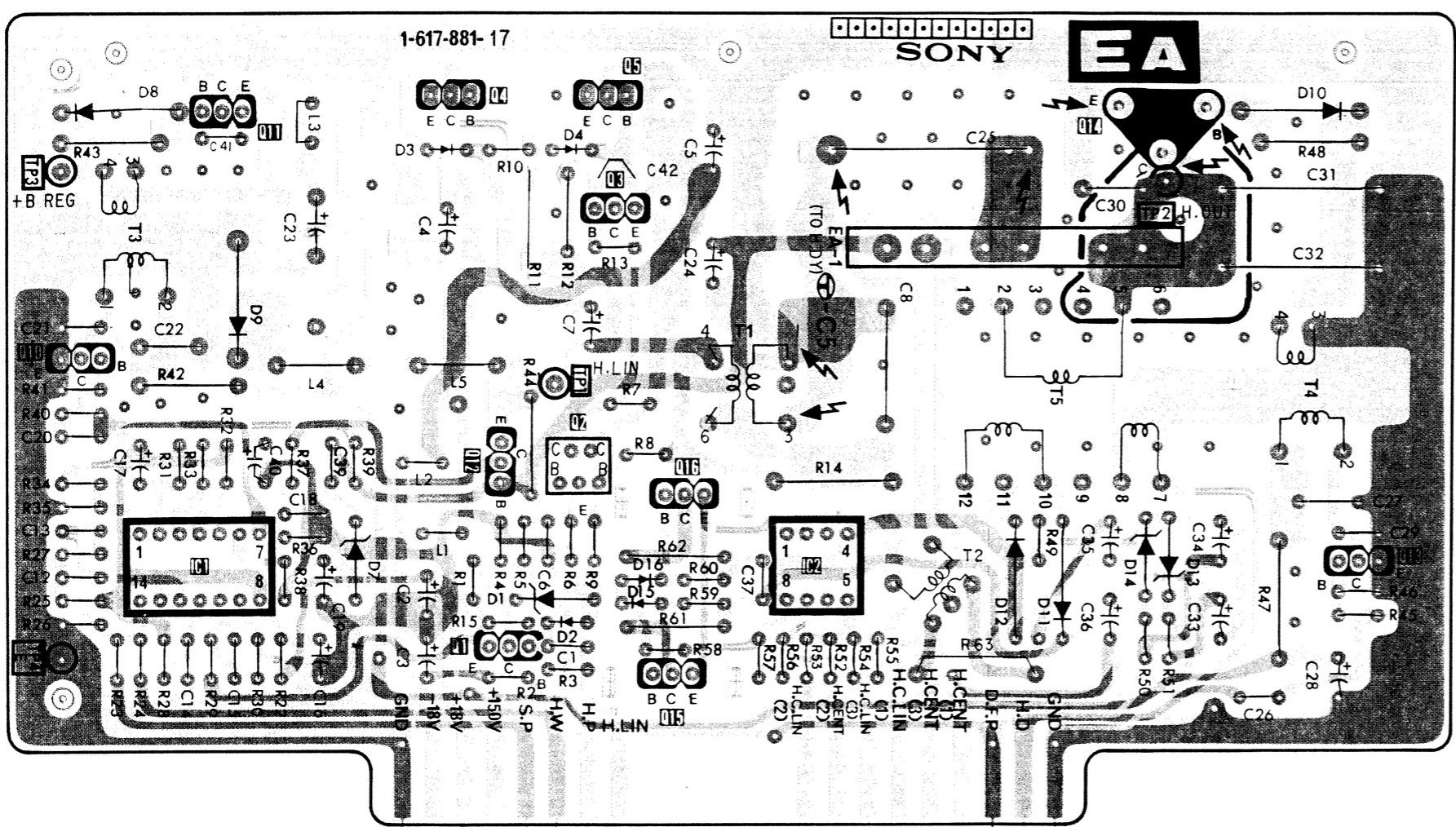


5. DIAGRAMS

- Pattern from the side which enables seeing.
- Pattern of the rear side.

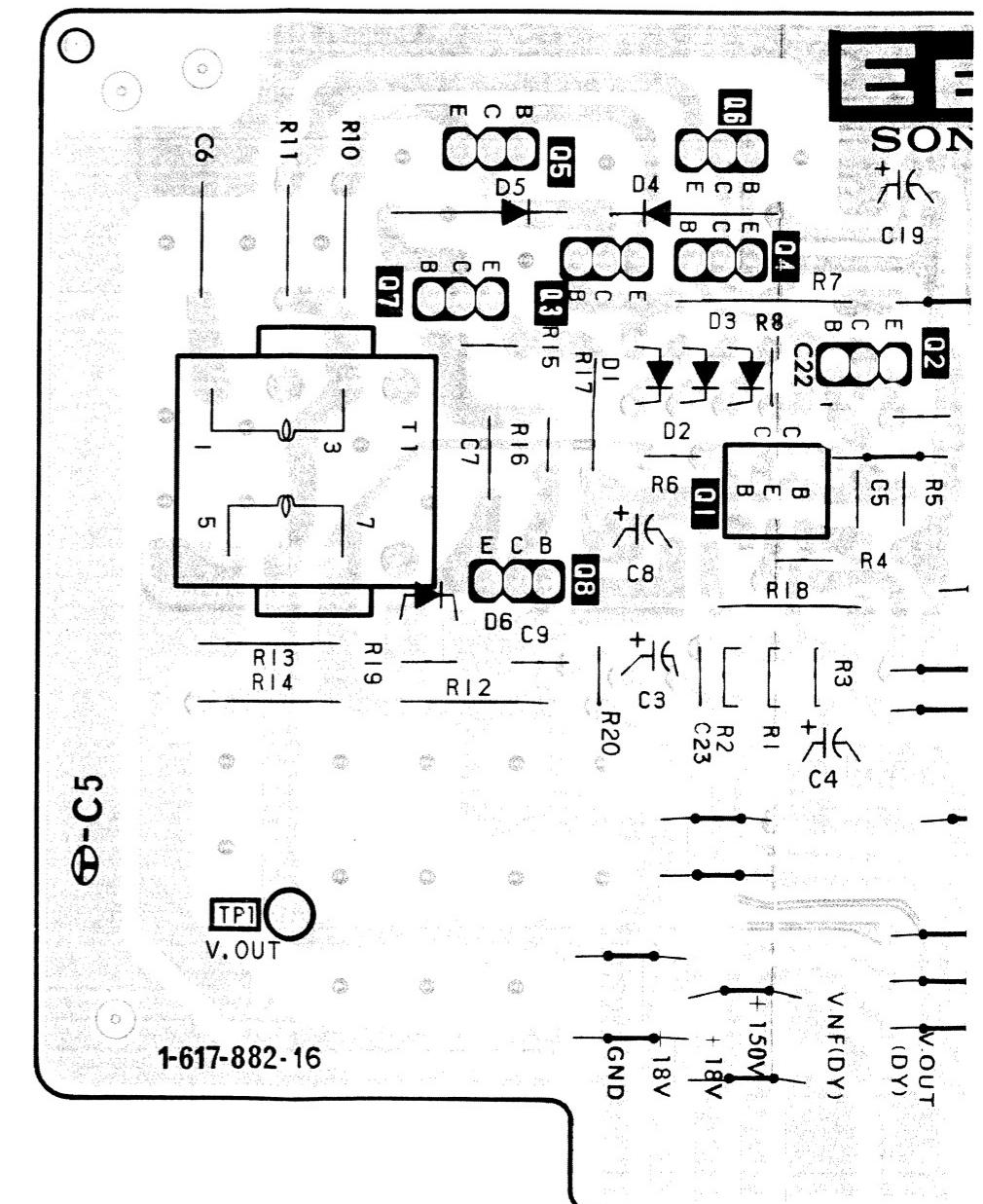
EA board (H OUT)

| IC | 1   | 2   |   |   |     |    |    |    |    |   |  |     |    |    |  |
|----|-----|-----|---|---|-----|----|----|----|----|---|--|-----|----|----|--|
| Q  | 10  | 11  | 4 | 5 | 3   | 16 | 15 | 12 | 2  | 1 |  | 14  | 13 |    |  |
| D  | 8   | 9   | 7 | 3 | 4   | 16 | 15 | 12 | 11 |   |  | 14  | 13 | 10 |  |
| TP | TP3 | TP4 |   |   | TPI |    |    |    |    |   |  | TP2 |    |    |  |

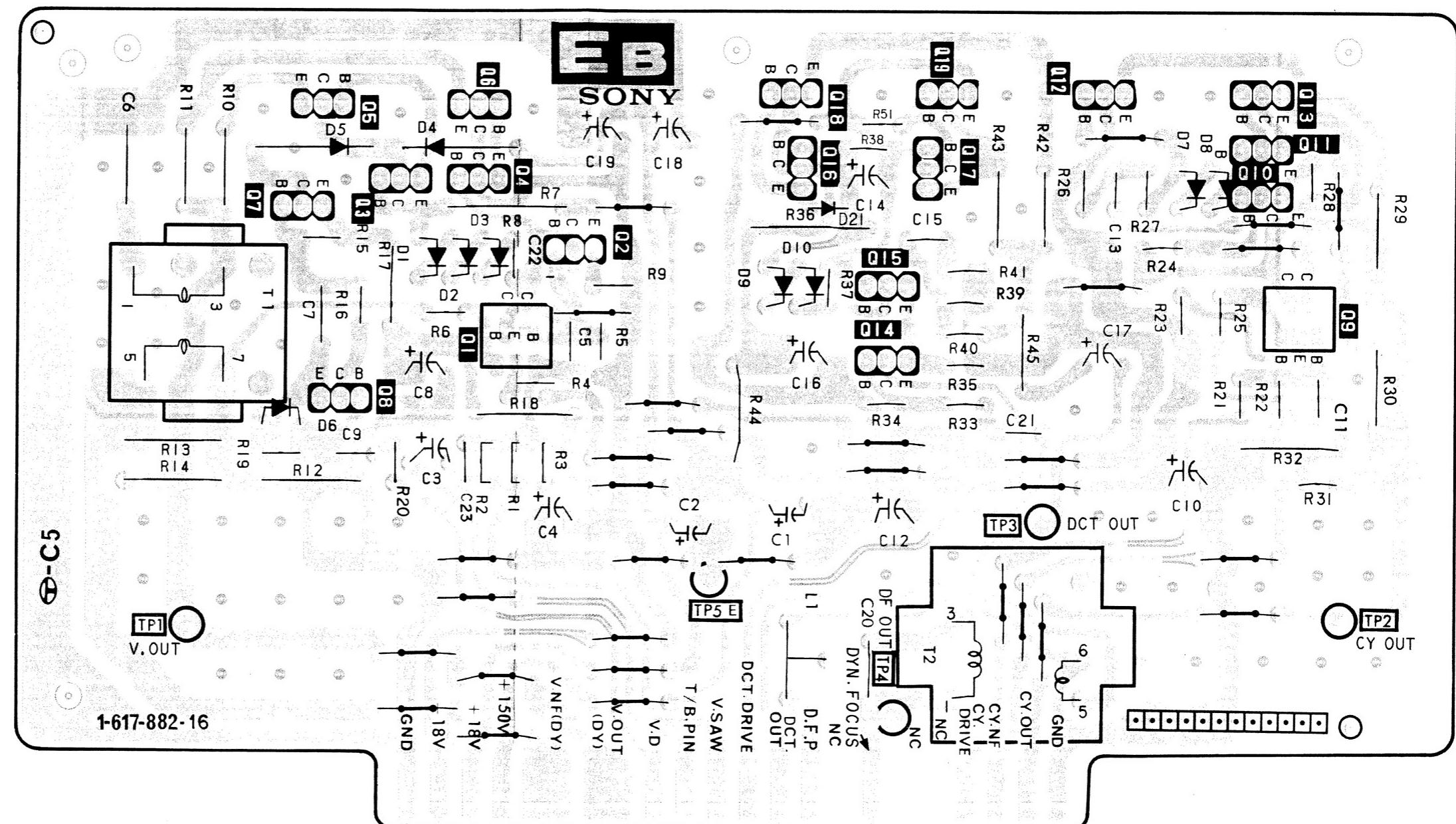
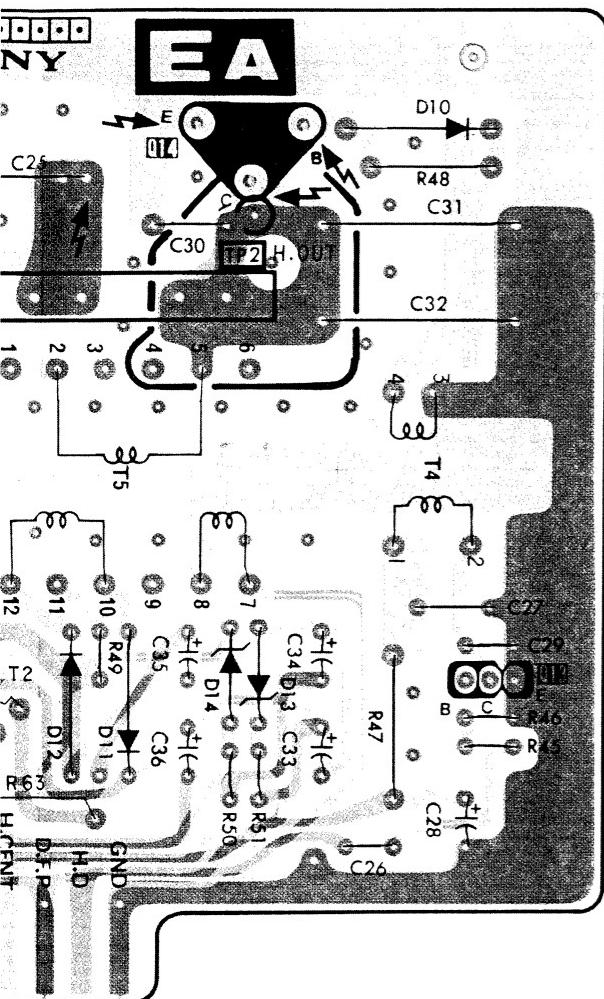
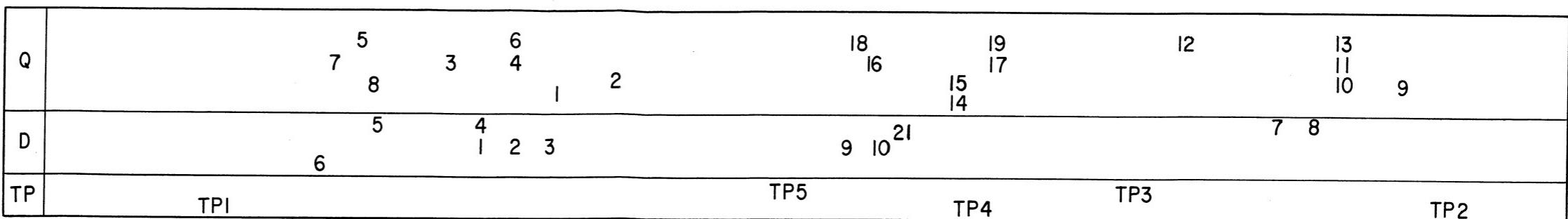
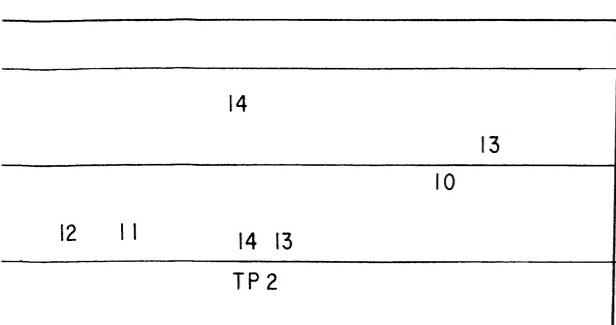


EB board (V OUT)

|    |     |   |   |   |   |
|----|-----|---|---|---|---|
| Q  | 5   | 6 |   |   |   |
| D  | 7   | 3 | 4 | 1 | 2 |
| TP | TP1 |   |   |   |   |



EB board (V OUT)

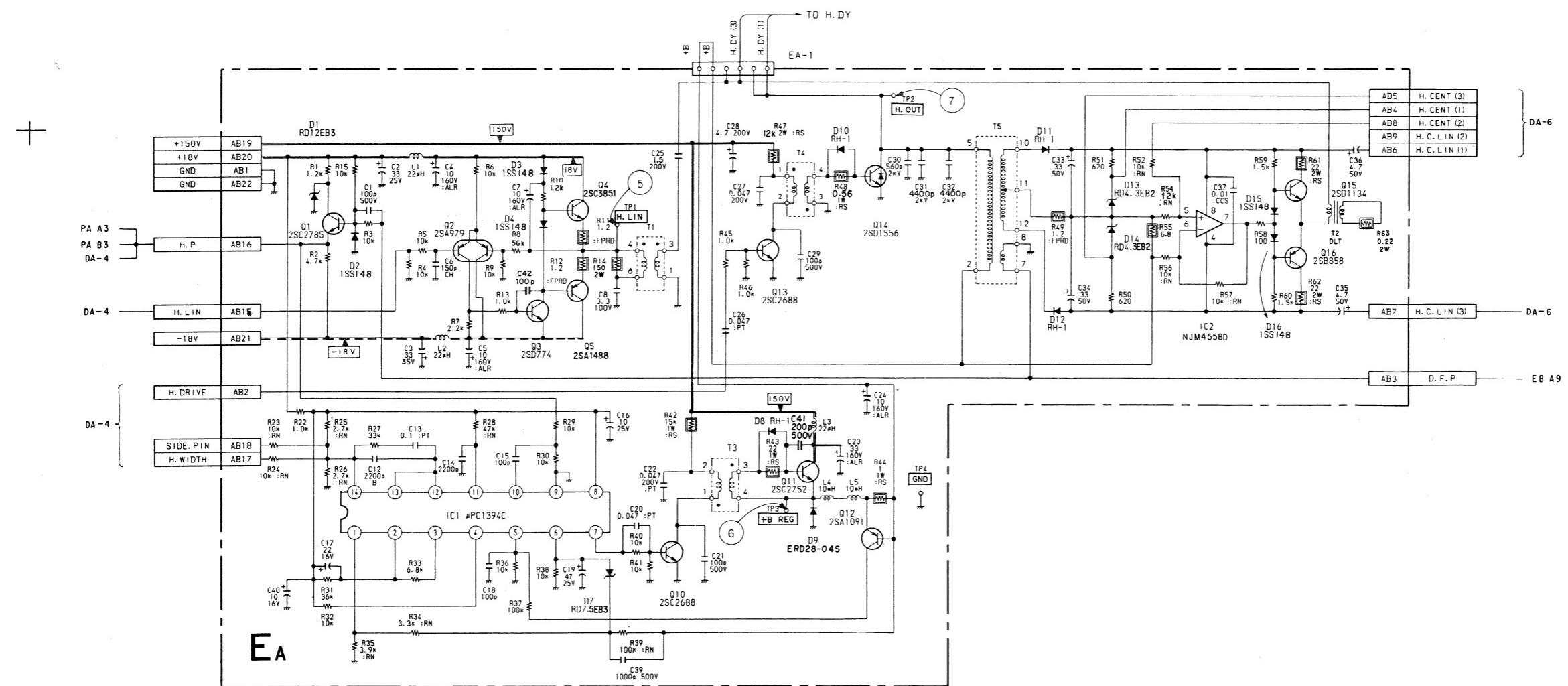
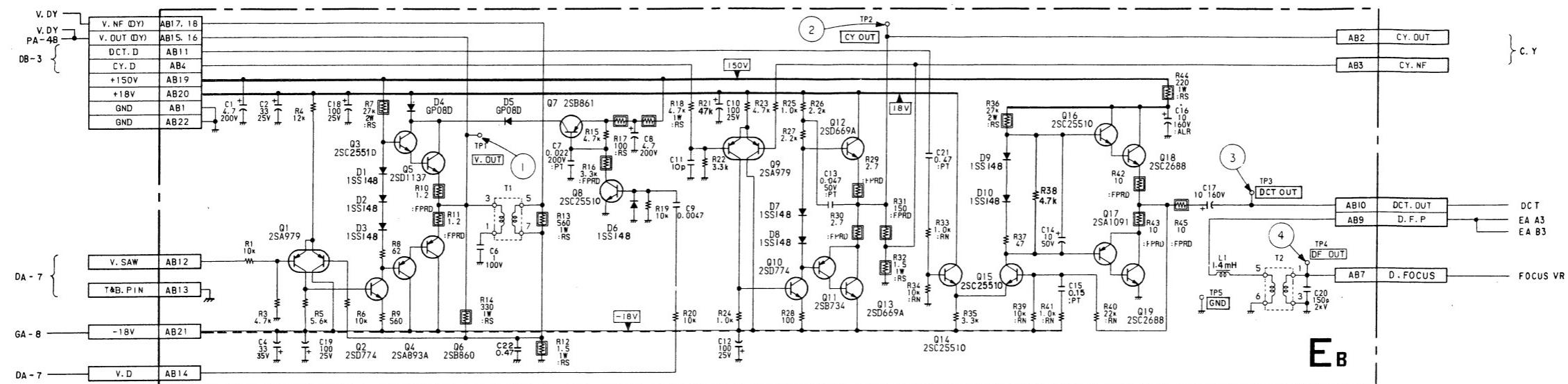


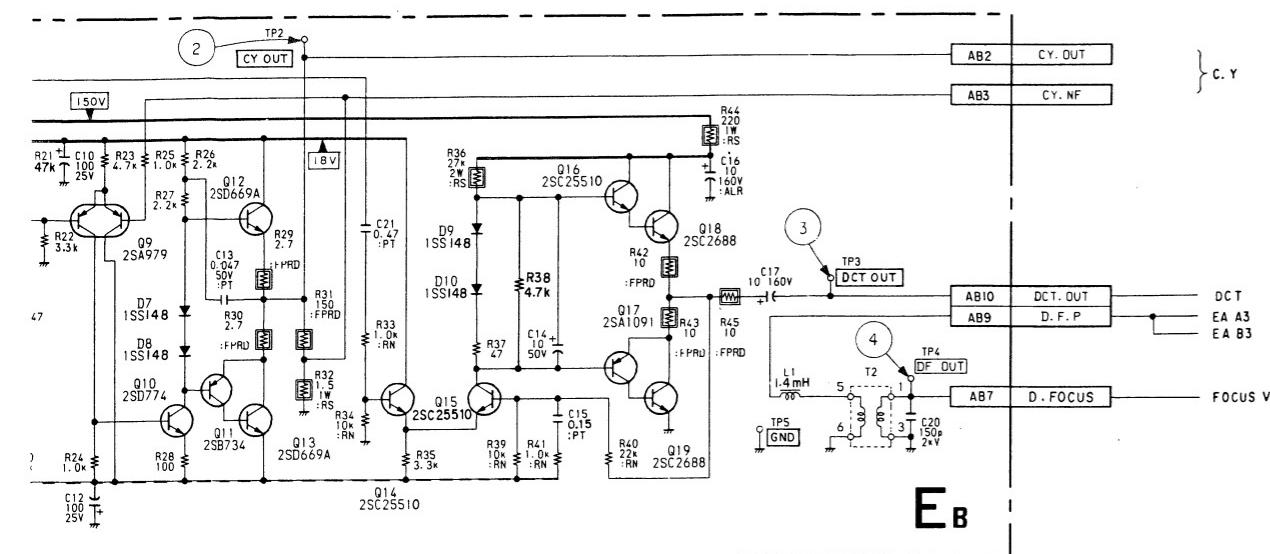
: Pattern from the side which enables seeing.

: Pattern of the rear side.

# EA, EB EA, EB

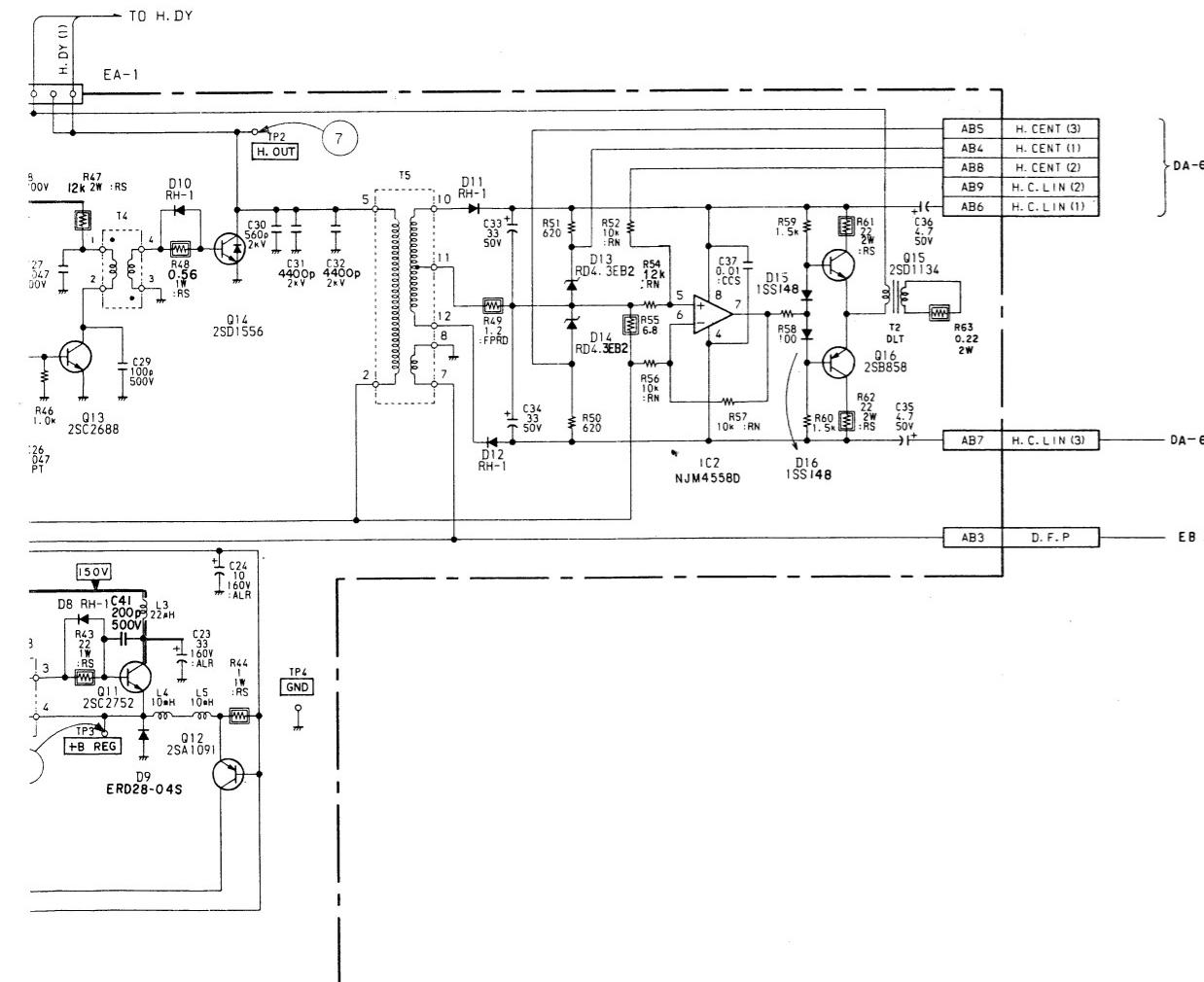
**EA board (H OUT)**  
**EB board (V OUT)**





}

E



10

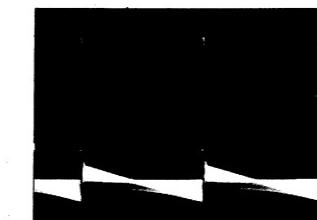
A circuit diagram segment showing a connection from a terminal labeled AB7 to a component labeled H. C. LIN (3).

EA BOARD

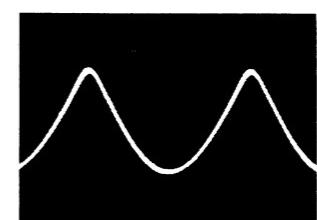
|     |           |                |
|-----|-----------|----------------|
| IC1 | UPC1394C  | P.W.M CONTROL  |
| 2   | NJM4558D  | H.CENT         |
|     |           |                |
|     |           |                |
| Q1  | 2SC2785   | H.PULSE BUFFER |
| 2   | 2SA979    | H.LIN AMP      |
| 3   | 2SD774    | H.LIN AMP      |
| 4   | 2SC3851   | H.LIN AMP OUT  |
| 5   | 2SA1488   | H.LIN AMP OUT  |
| 10  | 2SC2688   | P.W.M DRIVE    |
| 11  | 2SC2752   | P.W.M OUT      |
| 12  | 2SA1091   | O.C.P          |
| 13  | 2SC2688   | H.DRIVE        |
| 14  | 2SD1556   | H.OUT          |
| 15  | 2SD1134   | H.CENT         |
| 16  | 2SB858    | H.CENT         |
|     |           |                |
|     |           |                |
| D1  | RD12E-B3  | CLIPPER        |
| 2   | ISS148    | PROTECTOR      |
| 3   | ISS148    | BIAS           |
| 4   | ISS148    | BIAS           |
| 7   | RD7.5E-B3 | PROTECTOR      |
| 8   | RH-1      | P.W.M DRIVE    |
| 9   | ERD28-04S | P.W.M SW       |
| 10  | RH-1      | H.DRIVE        |
| 11  | RH-1      | H.P.RECT.      |
| 12  | RH-1      | H.P.RECT.      |
| 13  | RD4.3E-B2 | +4.3V REG      |
| 14  | RD4.3E-B2 | -4.3V REG      |
| 15  | ISS148    | BIAS           |
| 16  | ISS148    | BIAS           |
|     |           |                |
|     |           |                |

EB BOARD

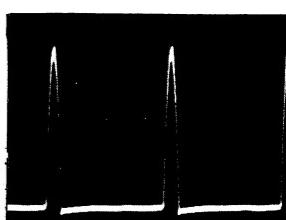
|    |          |               |
|----|----------|---------------|
| Q1 | 2SA979   | V.AMP         |
| 2  | 2SC3209  | V.AMP         |
| 3  | 2SC25510 | V.AMP         |
| 4  | 2SA1091  | V.AMP         |
| 5  | 2SC32983 | V.AMP OUT     |
| 6  | 2SA1306B | V.AMP OUT     |
| 7  | 2SB861   | V.RETRACE SW  |
| 8  | 2SC25510 | V.RETRACE SW  |
| 9  | 2SA979   | CY.AMP        |
| 10 | 2SD774   | CY.AMP        |
| 11 | 2SB734   | CY.AMP        |
| 12 | 2SD669A  | CY.AMP OUT    |
| 13 | 2SD669A  | CY.AMP OUT    |
| 14 | 2SC25510 | D.C.T AMP     |
| 15 | 2SC25510 | D.C.T AMP     |
| 16 | 2SC25510 | D.C.T AMP     |
| 17 | 2SA1091  | D.C.T AMP     |
| 18 | 2SC2688  | D.C.T AMP OUT |
| 19 | 2SC2688  | D.C.T AMP OUT |
|    |          |               |
|    |          |               |
| D1 | 1SS148   | BIAS          |
| 2  | 1SS148   | BIAS          |
| 3  | 1SS148   | BIAS          |
| 4  | GPO8D    | DC.STOPPER    |
| 5  | GPO8D    | DC.STOPPER    |
| 6  | 1SS148   | PROTECTOR     |
| 7  | 1SS148   | BIAS          |
| 8  | 1SS148   | BIAS          |
| 9  | 1SS148   | BIAS          |
| 10 | 1SS148   | BIAS          |
| 21 | 1SS148   | PROTECTOR     |



① 90Vp-p (V)



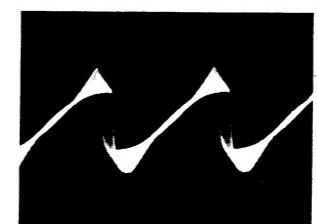
(4) 840Vp-p (H)



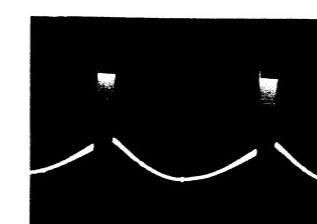
⑦ 920Vp-p (H)



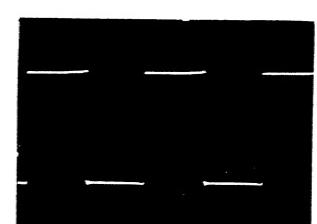
(2)  $0.3A_{D-D}$  (V)



(5)  $30V_{D-D}(H)$

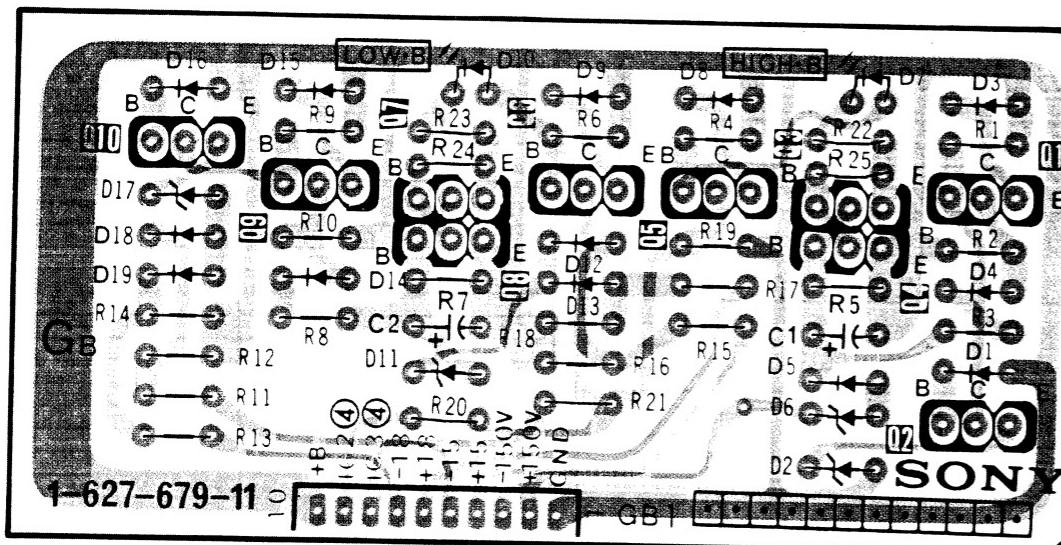


③ 100V<sub>D-D</sub> (H)

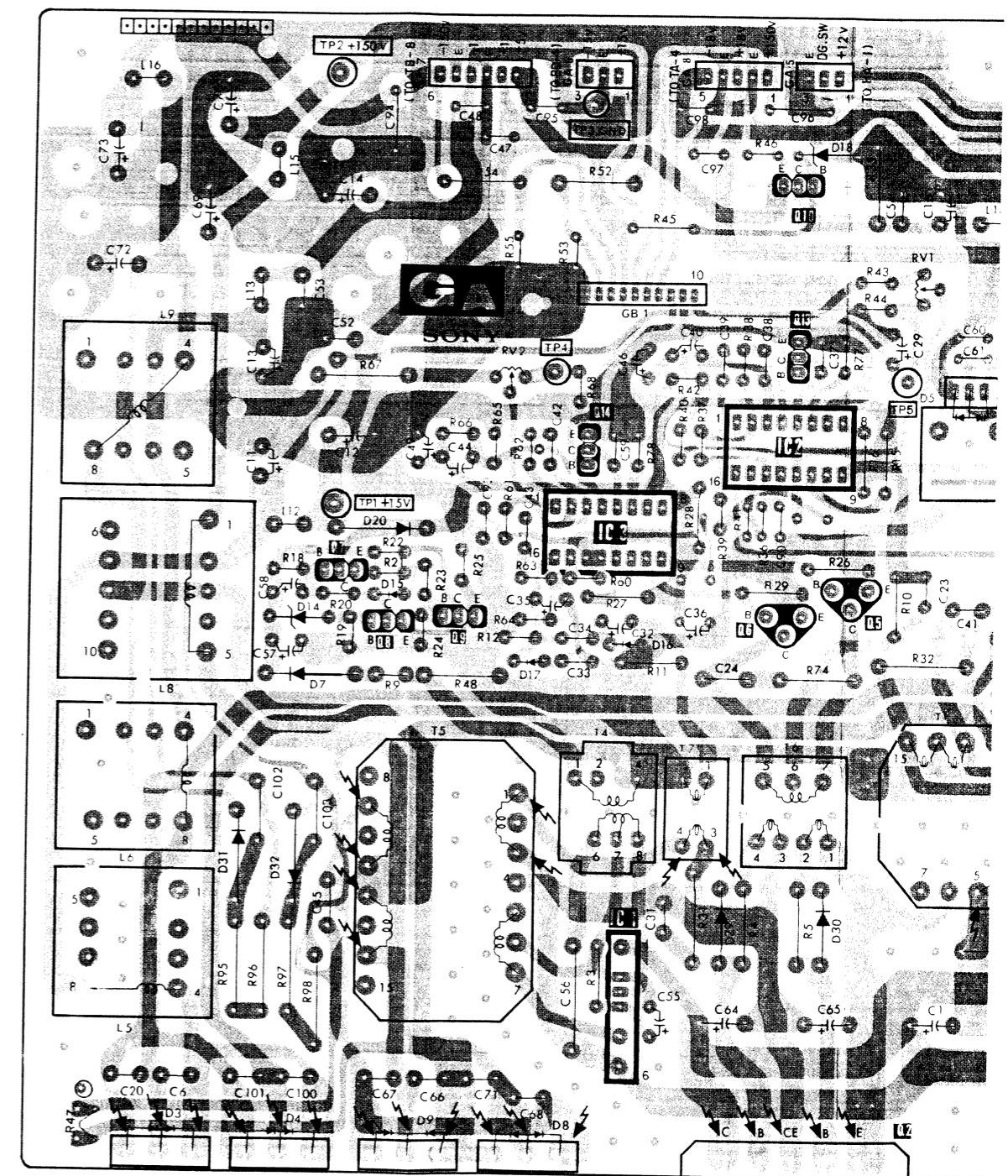
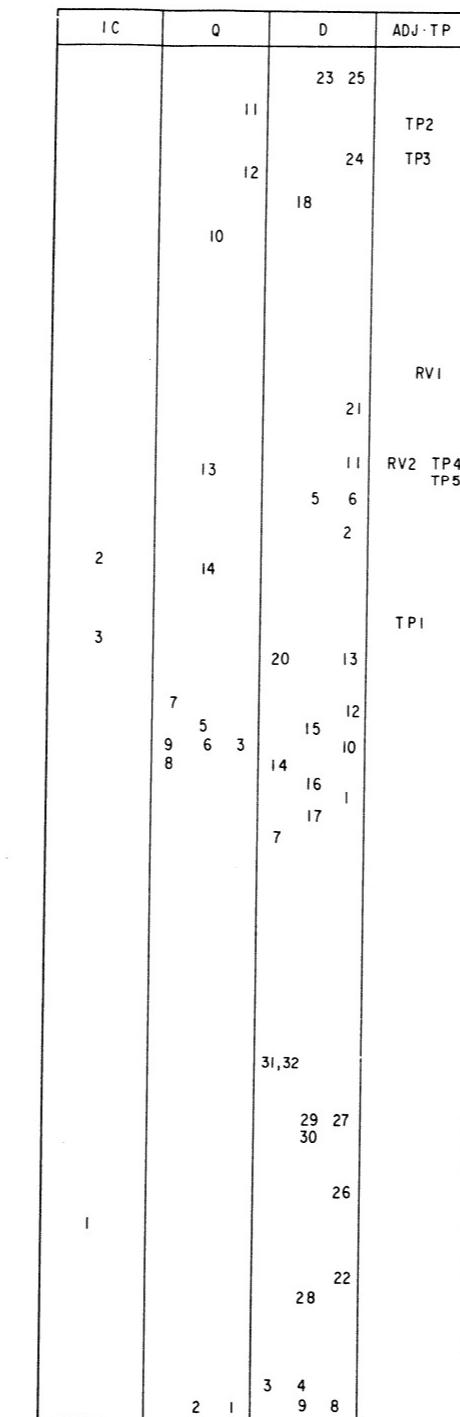


(6) 150V<sub>p-p</sub> (H)

GB board (OVER VOLTAGE PROTECTOR)

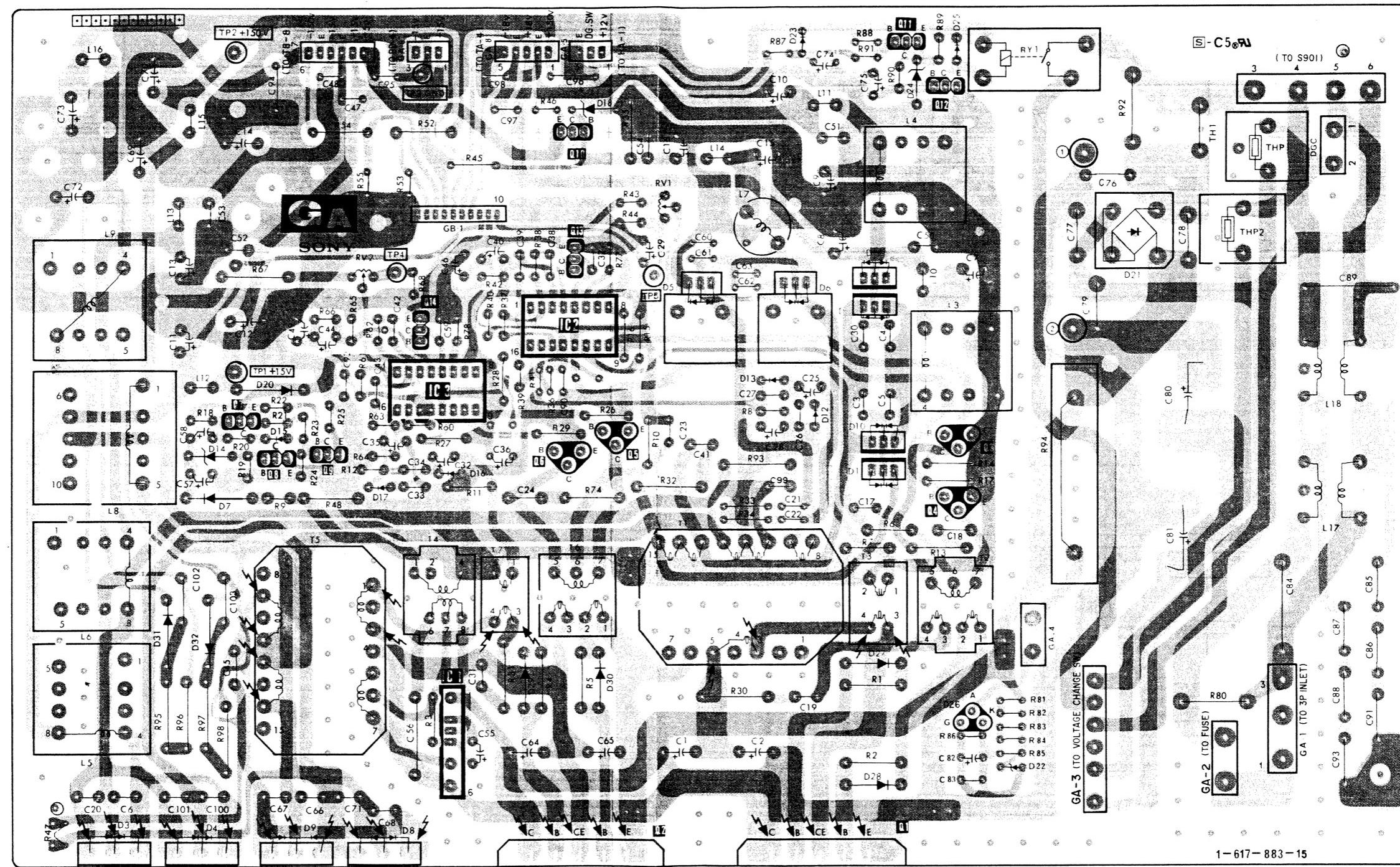


GA board (AC RECT, DC REG)



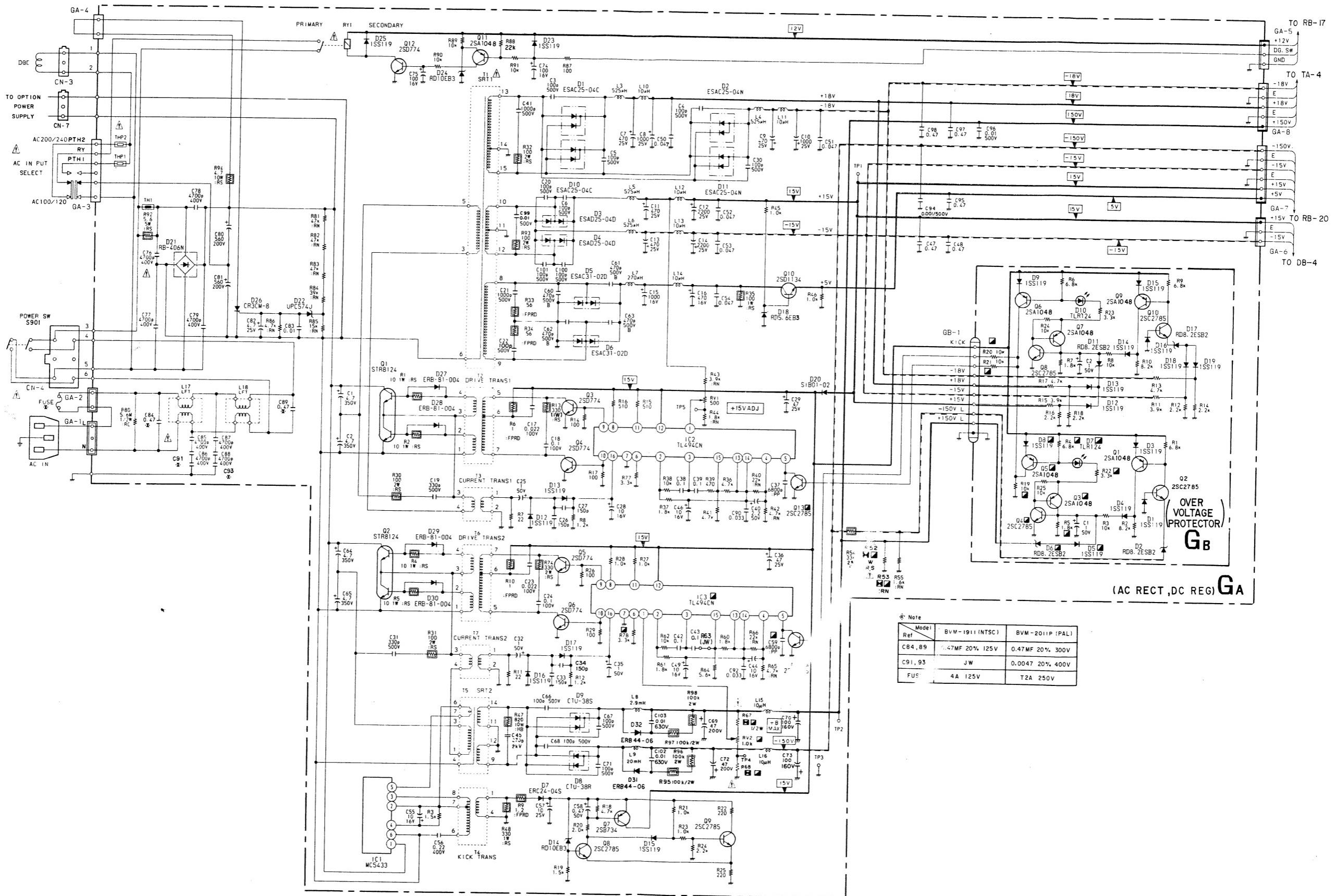
GA board (AC RECT, DC REG)

| I C | Q | D     | ADJ-TP |
|-----|---|-------|--------|
|     |   | 23 25 |        |
| 11  |   | TP2   |        |
| 12  |   | 24    | TP3    |
| 10  |   | 18    |        |
|     |   |       | RV1    |
| 13  |   | 21    |        |
| 11  |   | RV2   | TP4    |
| 6   |   | 5     | TP5    |
| 2   |   | 2     |        |
| 3   |   | 14    | TPI    |
| 7   |   | 20    | 13     |
| 9   |   | 5     |        |
| 8   |   | 6     |        |
|     |   | 12    |        |
|     |   | 15    |        |
|     |   | 10    |        |
|     |   | 14    |        |
|     |   | 1     |        |
|     |   | 17    |        |
|     |   | 7     |        |
|     |   | 31,32 |        |
|     |   | 29    |        |
|     |   | 30    |        |
|     |   | 27    |        |
|     |   | 26    |        |
|     |   | 22    |        |
|     |   | 28    |        |
|     |   | 3     |        |
|     |   | 4     |        |
|     |   | 9     |        |
|     |   | 8     |        |

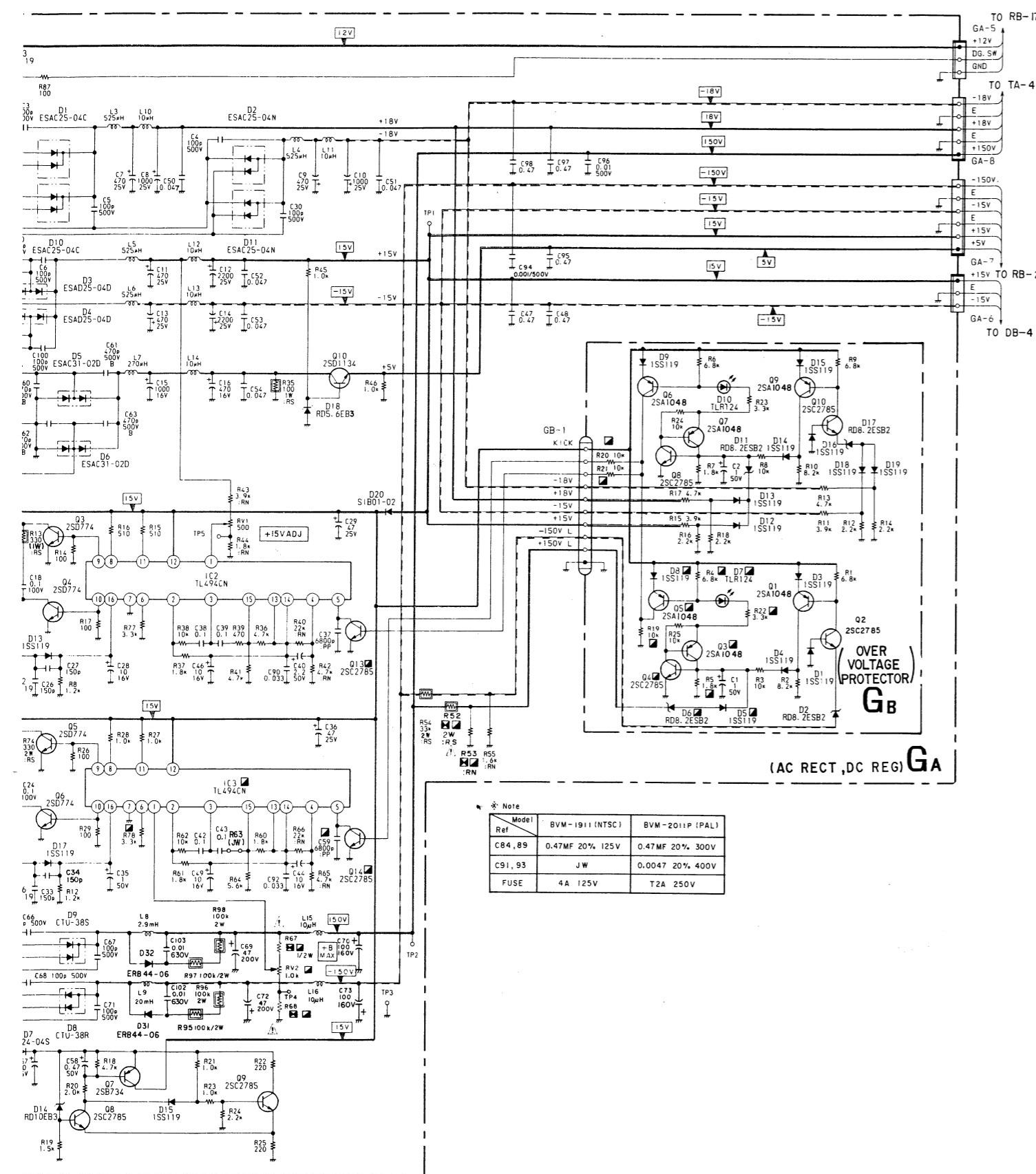


# GA, GB GA, GB

**GA board (AC RECT, DC REG)**  
**GB board (OVER VOLTAGE PROTECTOR)**



GA BOARD

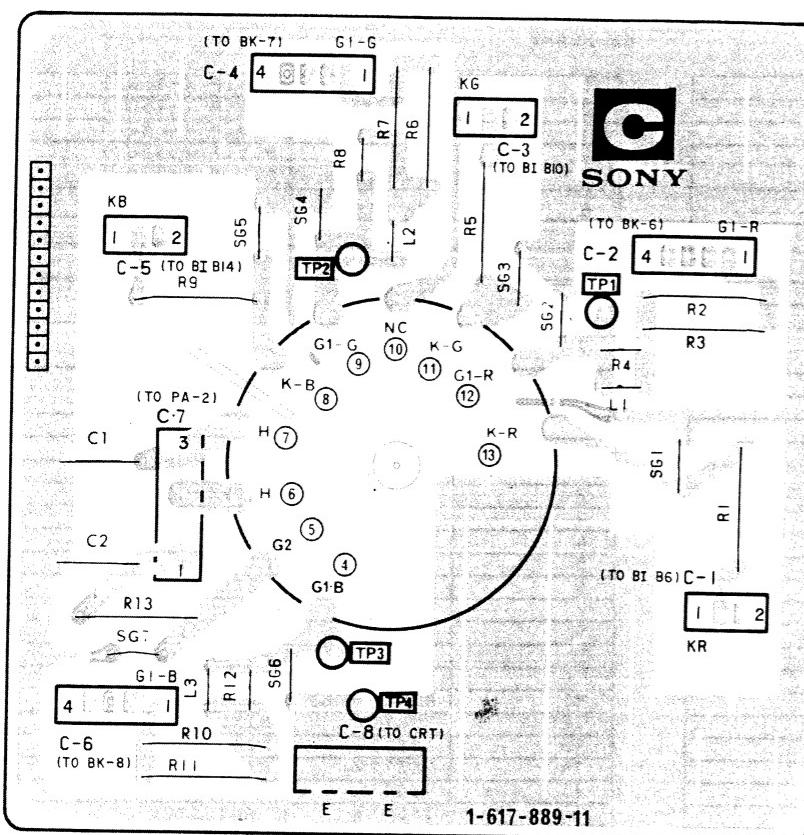


GB BOARD

|     |             |              |
|-----|-------------|--------------|
| IC1 | MC5433      | STARTER      |
| 2   | TL494CN     | DC REG       |
| 3   | TL494CN     | DC REG       |
| Q1  | STR8124     | DC-DC CONV.  |
| 2   | STR8124     | DC-DC CONV.  |
| 3   | 2SD774      | CONV. DRIVE  |
| 4   | 2SD774      | CONV. DRIVE  |
| 5   | 2SD774      | CONV. DRIVE  |
| 6   | 2SD774      | CONV. DRIVE  |
| 7   | 2SB734      | SOFT. START  |
| 8   | 2SC2785     | SOFT. START  |
| 9   | 2SC2785     | SOFT. START  |
| 10  | 2SD1134     | +5V REG.     |
| 11  | 2SA1048     | D.G. CONTROL |
| 12  | 2SD774      | D.G. CONTROL |
| 13  | 2SC2785     | 0.V.P SW     |
| 14  | 2SC2785     | 0.V.P SW     |
| D1  | ESAC25-04C  | +18V RECT    |
| 2   | ESAC25-04N  | -18V RECT    |
| 3   | ESAD25-04D  | +15V RECT    |
| 4   | ESAD25-04D  | -15V RECT    |
| 5   | ESAC31-02D  | +5V RECT     |
| 6   | ESAC31-02D  | -5V RECT     |
| 7   | ERC24-045   | START. RECT  |
| 8   | CTU-38R     | -150V RECT   |
| 9   | CTU-38S     | +150V RECT   |
| 10  | ESAC25-04C  | +18V RECT    |
| 11  | ESAC25-04N  | -18V RECT    |
| 12  | ISS119      | O.C.P. RECT  |
| 13  | ISS119      | O.C.P. RECT  |
| 14  | RD10EB3T    | STARTER      |
| 15  | ISS119      | STARTER      |
| 16  | ISS119      | O.C.P. RECT  |
| 17  | ISS119      | O.C.P. RECT  |
| 18  | RD5.6E-B3TN | +5V REG      |
| 19  | ISS119      |              |
| 20  | SIB01-02    | DC. STOPPER  |
| 21  | RB406N      | AC RECT      |
| 22  | UPC574J     | 0.V.P        |
| 23  | ISS119      | DISCHARGE    |
| 24  | RD10EB3T    | +10V REG     |
| 25  | ISS119      | SW PROTECT   |
| 26  | CR3CM-8     | 0.V.P        |
| 27  | ERB81-004   | CONV. DRIVE  |
| 28  | ERB81-004   | CONV. DRIVE  |
| 29  | ERB81-004   | CONV. DRIVE  |
| 30  | ERB81-004   | CONV. DRIVE  |
| 31  | ERB44-06    | CONV. DRIVE  |
| 32  | ERB44-06    |              |

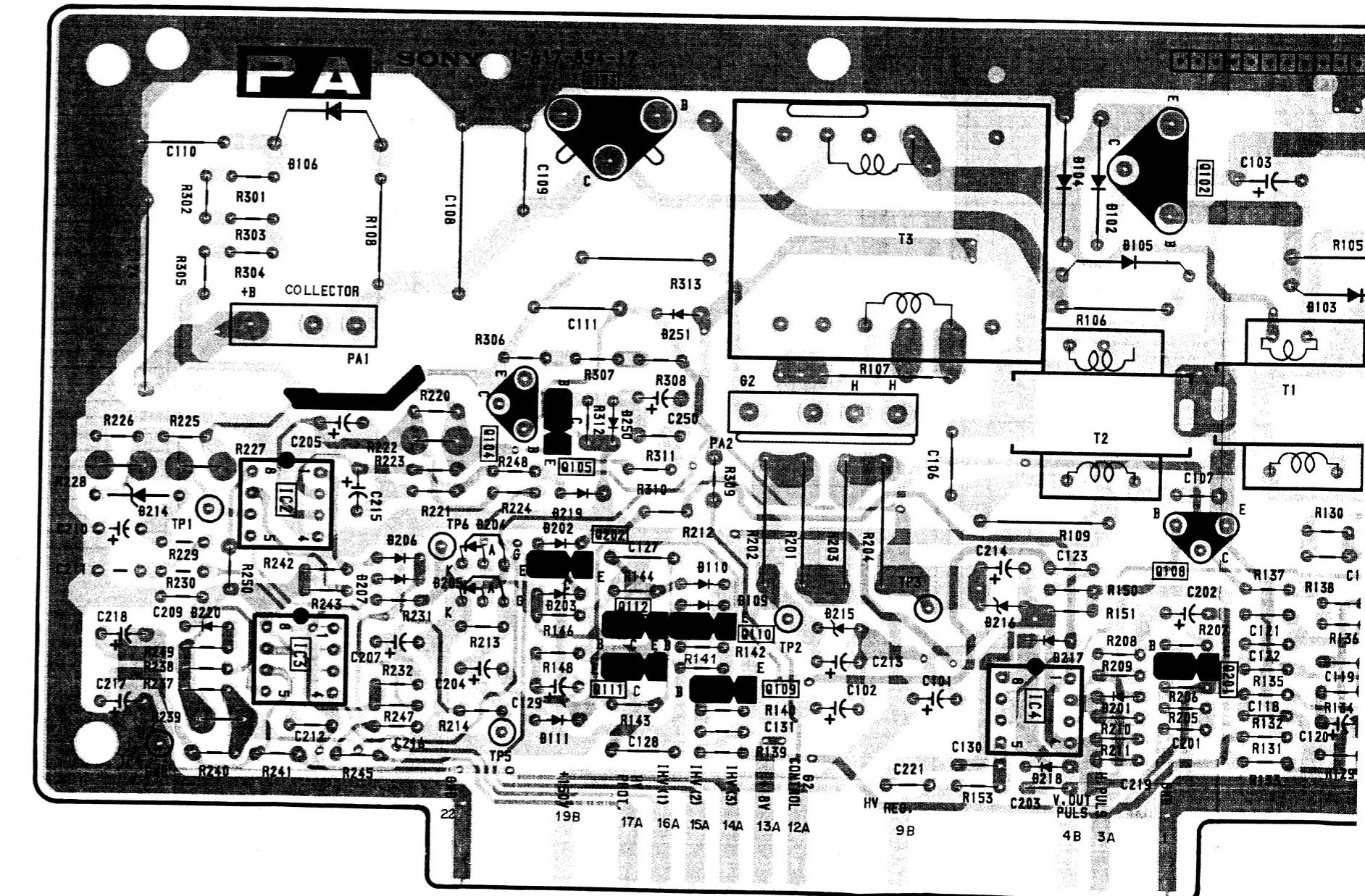
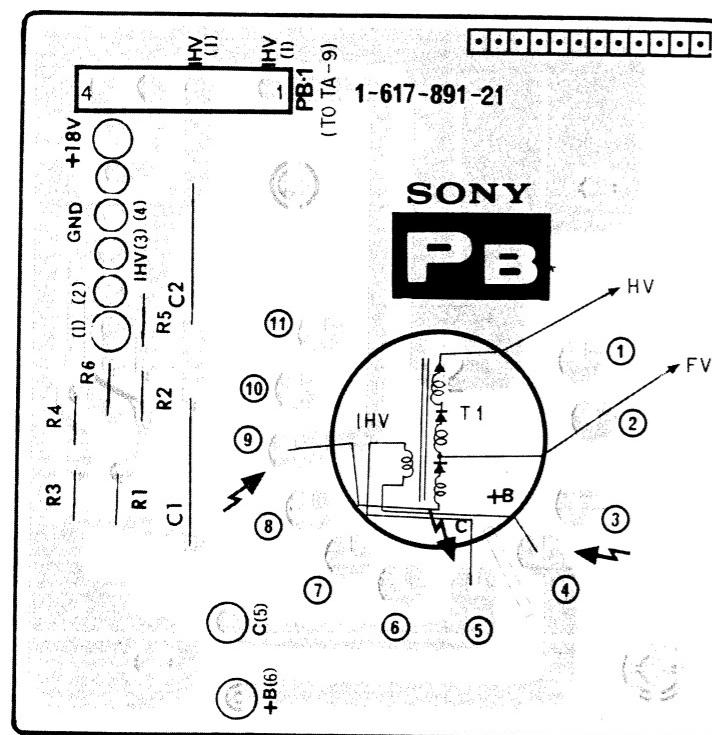
## 5. DIAGRAMS

C board (CRT SOCKET)



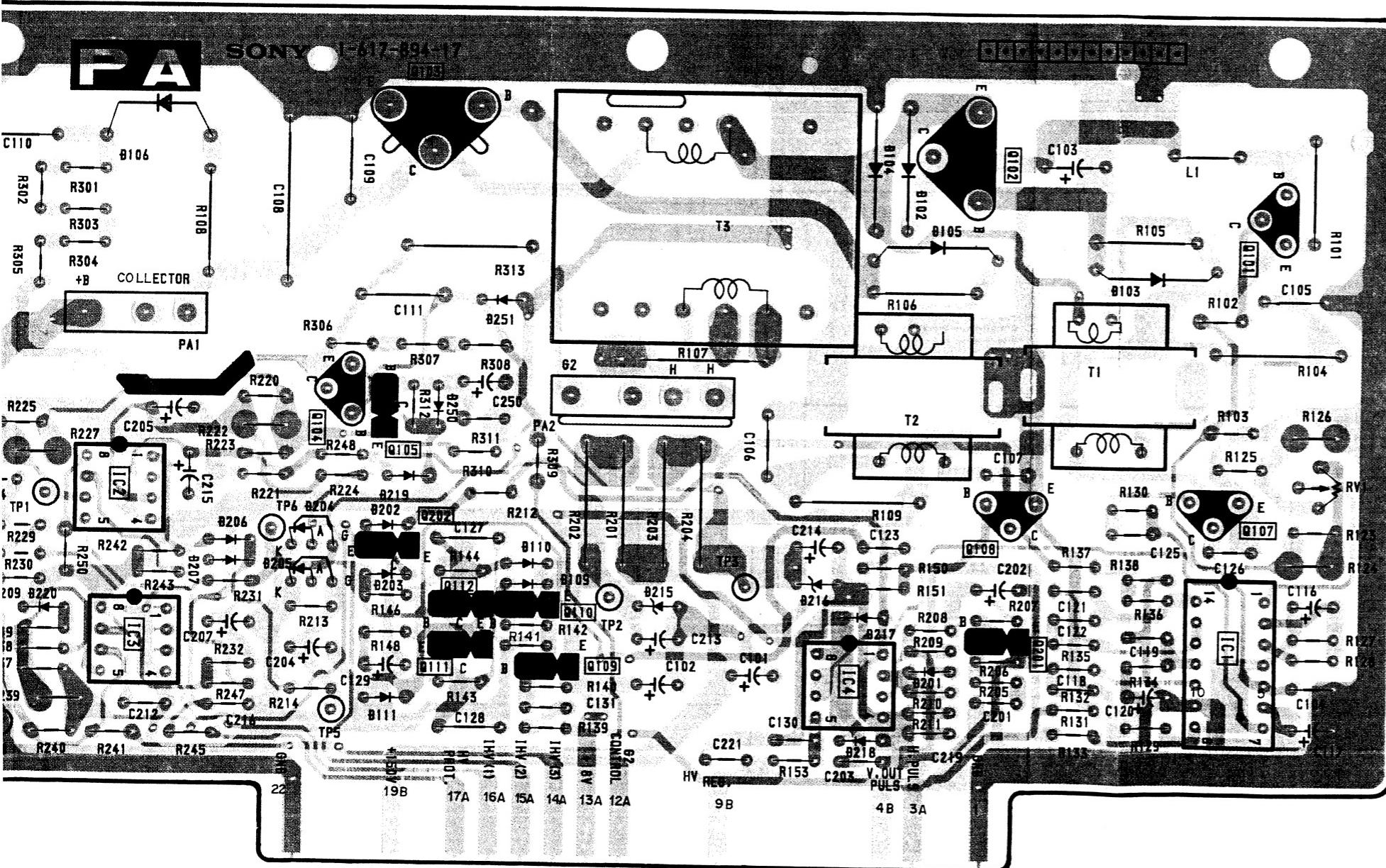
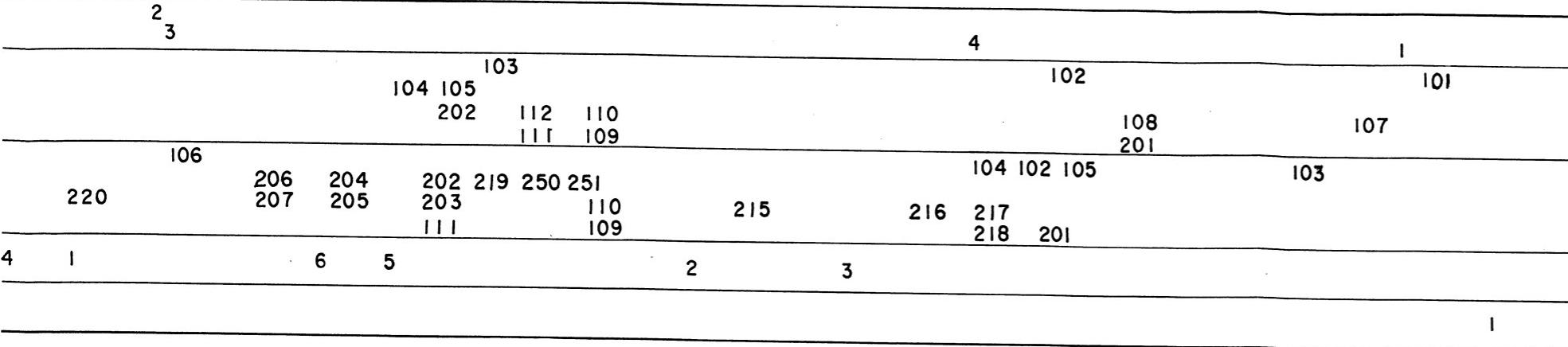
#### **PA board (HIGH VOLTAGE PROTECTOR)**

PB board (FBT)



**C, PA, PB C, PA, PB**

DETECTOR)

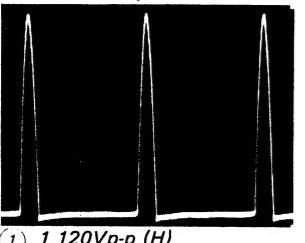
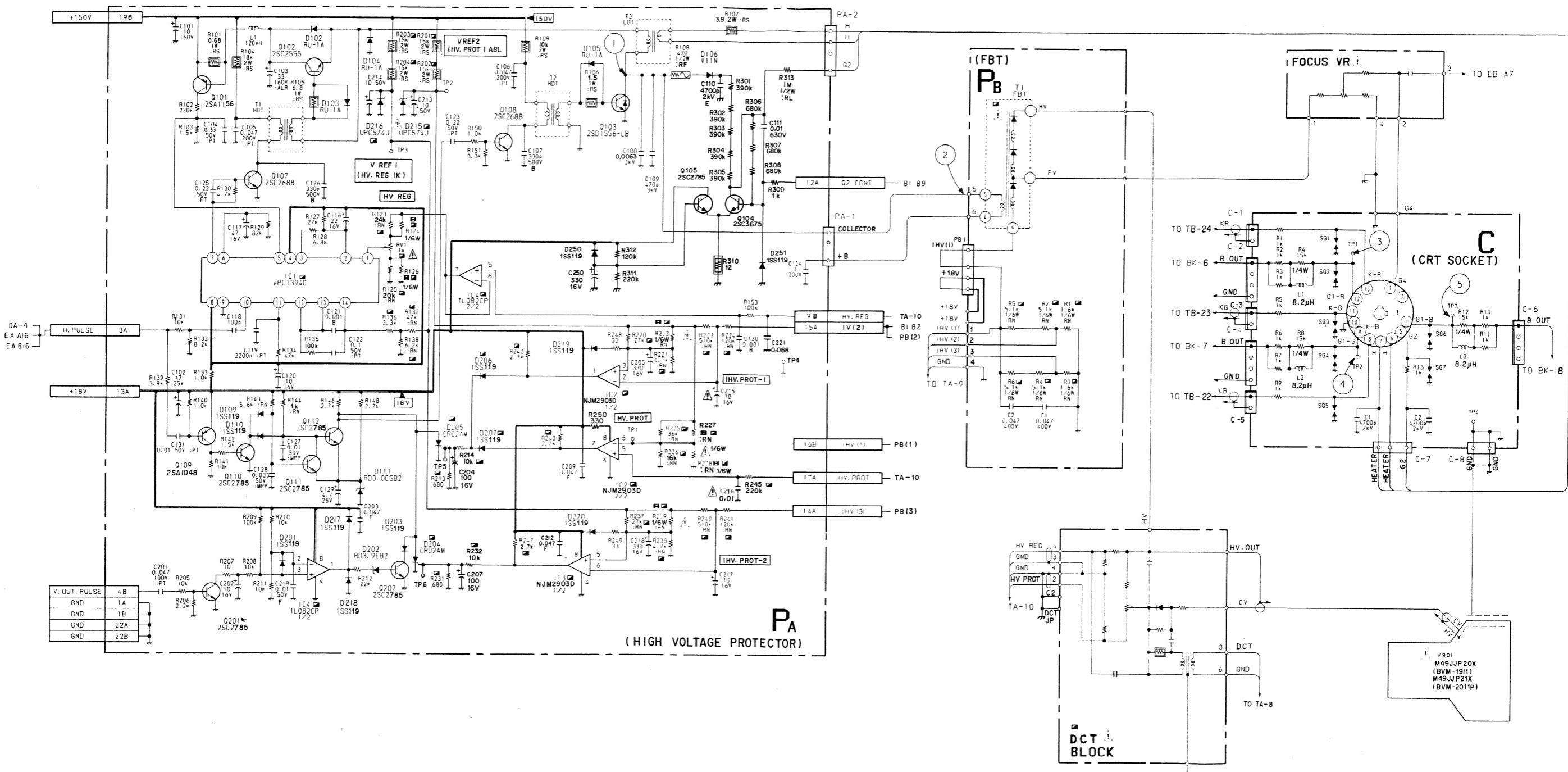


PA BOARD

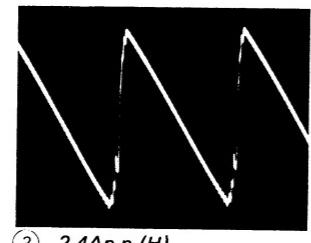
|      |           |                     |
|------|-----------|---------------------|
| IC1  | uPC1394C  | P.W.M CONTROL       |
| 2    | NJM2903D  | COMPARATOR          |
| 3    | NJM2903D  | COMPARATOR          |
| 4    | TL082CP   | BUFFER & COMPARATOR |
|      |           |                     |
| Q101 | 2SA1142   | O.V.P               |
| 102  | 2SC2555   | DC-DC CONV.         |
| 103  | 2SD1556   | HV CONV.            |
| 104  | 2SC3675   | G2 REGULATOR        |
| 105  | 2SC3675   | G2 REGULATOR        |
| 107  | 2SC2688   | DC-DC CONV. DRIVE   |
| 108  | 2SC2688   | HV CONV. DRIVE      |
| 109  | 2SA1175   | HV CONV. DRIVE      |
| 110  | 2SC2785   | HV CONV. DRIVE      |
| 111  | 2SC2785   | HV CONV. DRIVE      |
| 112  | 2SC2785   | HV CONV. DRIVE      |
| 201  | 2SC2785   | CRT PROTECTOR       |
| 202  | 2SC2785   | CRT PROTECTOR       |
| D102 | RU-1A     | DC-DC CONV.         |
| 103  | RU-1A     | DC-DC CONV.         |
| 104  | RU-1A     | DC-DC CONV.         |
| 105  | RU-1A     | HV CONV. DRIVE      |
| 106  | V11N      | RECTIFIER           |
| 107  | RD6.2EB2  | G2 CONTROL          |
| 109  | ISS119    | HV CONV. DRIVE      |
| 110  | ISS119    | HV CONV. DRIVE      |
| 111  | RD3.0ESB2 | HV CONV. DRIVE      |
| 201  | ISS119    | PROTECTOR           |
| 202  | RD3.9EB2  | CRT PROTECTOR       |
| 203  | ISS148    | CRT PROTECTOR       |
| 204  | CRO2AM    | PROTECTOR           |
| 205  | CRO2AM    | PROTECTOR           |
| 206  | ISS119    | MIX                 |
| 207  | ISS119    | MIX                 |
| 214  | HZ1A2L    | HV PROT             |
| 215  | uPC574J   | HV PROT. REF.       |
| 216  | uPC574J   | HV PROT. REF.       |
| 217  | ISS119    | PROT                |
| 218  | ISS119    | PROT                |
| 219  | ISS119    | PROT                |
| 220  | ISS119    | PROT                |
| 250  |           |                     |
| 251  |           |                     |

-  : Pattern from the side which enables seeing.
-  : Pattern of the rear side.

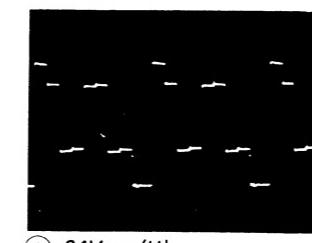
C board (CRT SOCKET)  
 PA board (HIGH VOLTAGE PROTECTOR)  
 PB board (FBT)



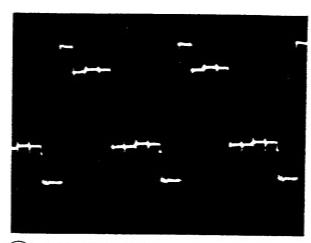
(1) 1.120Vp-p (H)



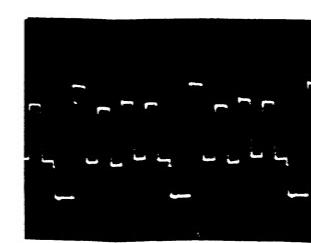
(2) 2.4Ap-p (H)



(3) 64Vp-p (H)

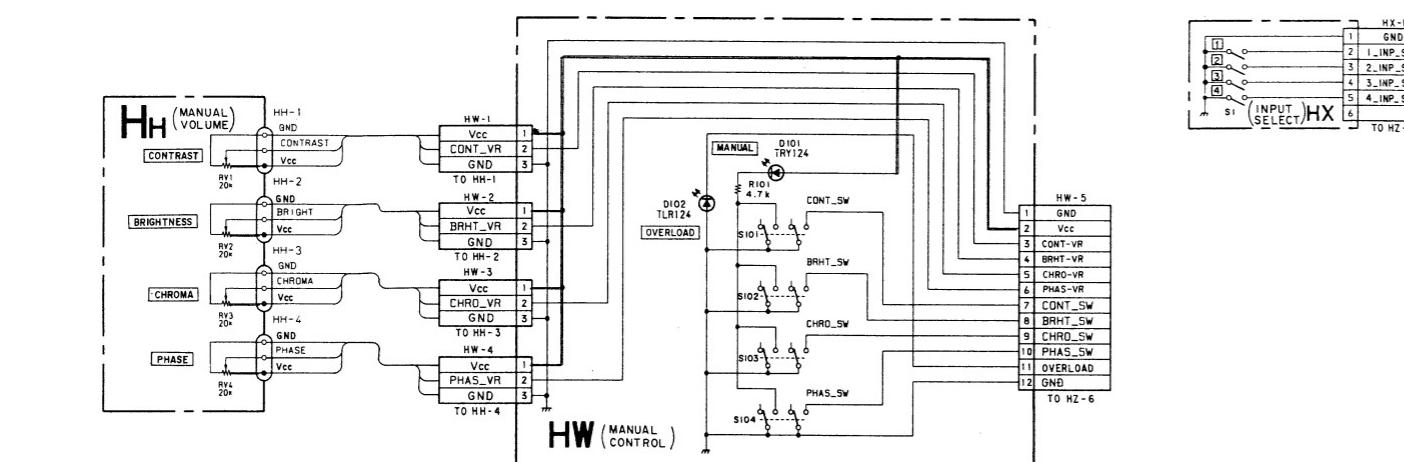
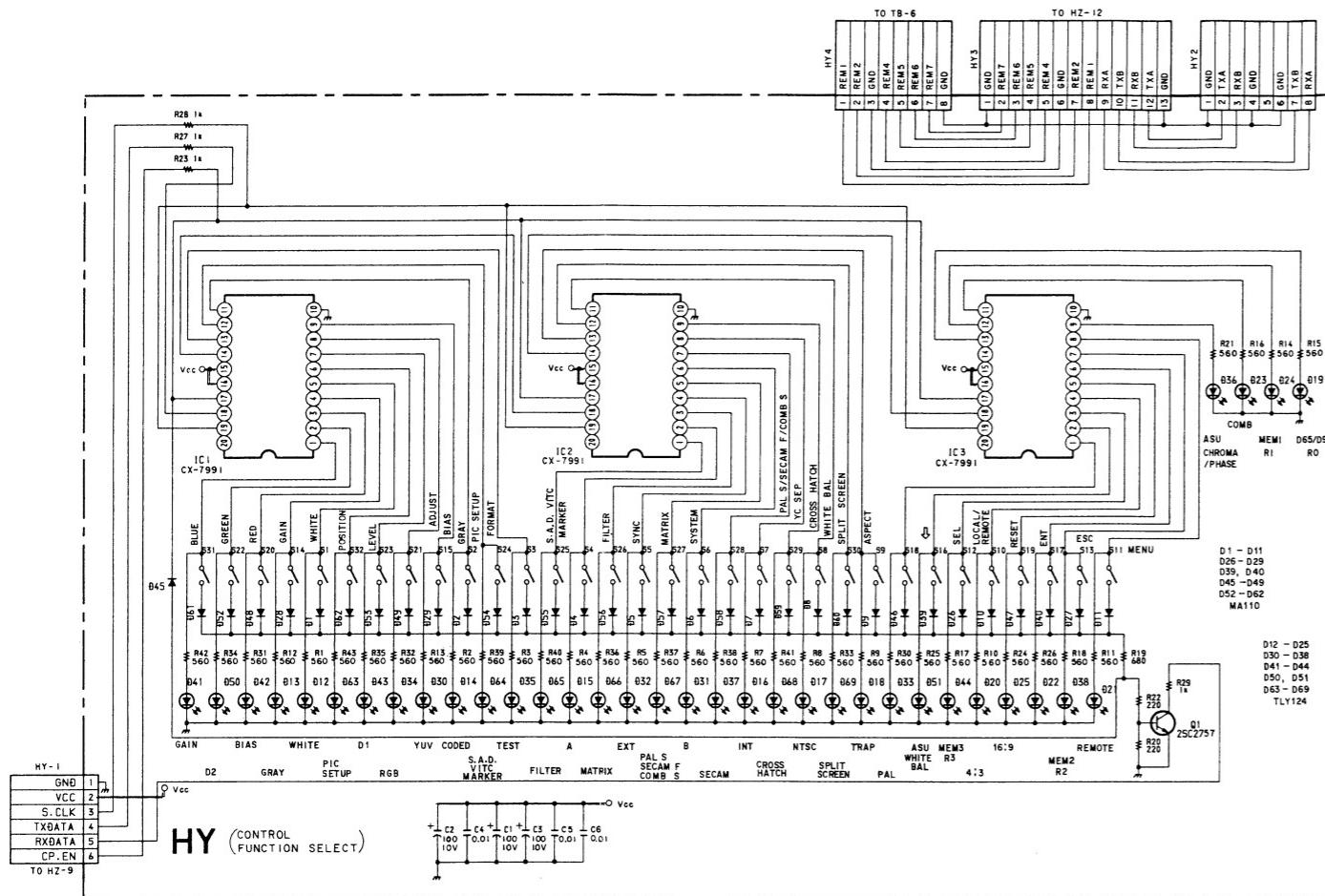


(4) 68Vp-p (H)

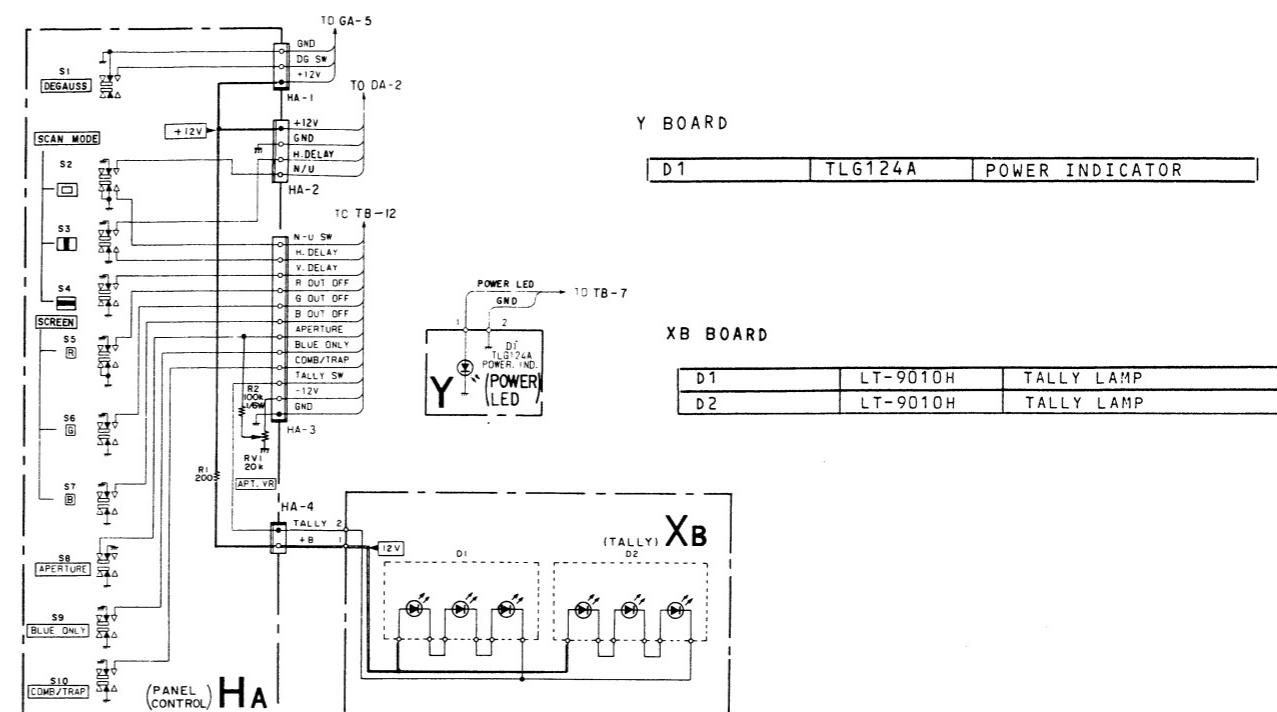


(5) 61Vp-p (H)

HA board (PANEL CONTROL), HH board (MANUAL VOLUME), HW board (MANUAL CONTROL),  
HX board (INPUT SELECT), HY board (CONTROL FUNCTION SELECT), XB board (TALLY), Y board (POWER LED)

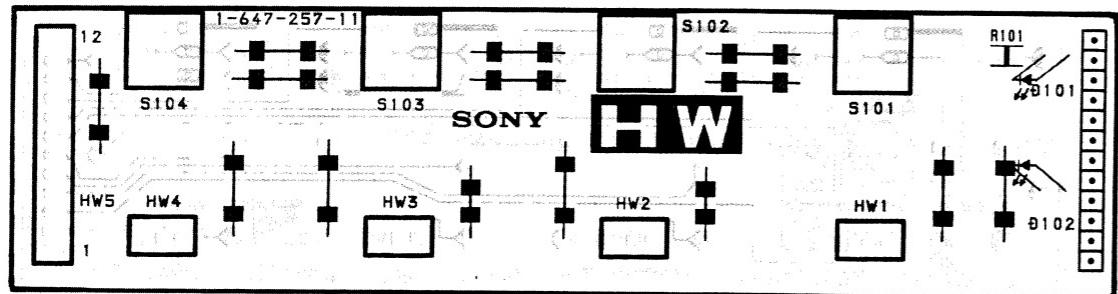


|       |        |           |
|-------|--------|-----------|
| D 101 | TLR124 | INDICATOR |
| 102   | TLR124 | INDICATOR |



|      |           |               |      |        |            |
|------|-----------|---------------|------|--------|------------|
| IC 1 | CX - 7991 | KEY SCAN      | D 35 | TLY124 | INDICATOR  |
| 2    | CX - 7991 | KEY SCAN      | 36   | TLY124 | INDICATOR  |
| 3    | CX - 7991 | KEY SCAN      | 37   | TLY124 | INDICATOR  |
| 01   | 2SC2757   | KEY DETECTION | 38   | TLY124 | INDICATOR  |
| D 1  | MA110     | PROTECTION    | 39   | MA110  | PROTECTION |
| 2    | MA110     | PROTECTION    | 40   | MA110  | PROTECTION |
| 3    | MA110     | PROTECTION    | 41   | TLY124 | INDICATOR  |
| 4    | MA110     | PROTECTION    | 42   | TLY124 | INDICATOR  |
| 5    | MA110     | PROTECTION    | 43   | TLY124 | INDICATOR  |
| 6    | MA110     | PROTECTION    | 44   | TLY124 | INDICATOR  |
| 7    | MA110     | PROTECTION    | 45   | MA110  | PROTECTION |
| 8    | MA110     | PROTECTION    | 46   | MA110  | PROTECTION |
| 9    | MA110     | PROTECTION    | 47   | MA110  | PROTECTION |
| 10   | MA110     | PROTECTION    | 48   | MA110  | PROTECTION |
| 11   | MA110     | PROTECTION    | 49   | MA110  | PROTECTION |
| 12   | MA110     | PROTECTION    | 50   | TLY124 | INDICATOR  |
| 13   | TLY124    | INDICATOR     | 51   | TLY124 | INDICATOR  |
| 14   | TLY124    | INDICATOR     | 52   | MA110  | PROTECTION |
| 15   | TLY124    | INDICATOR     | 53   | MA110  | PROTECTION |
| 16   | TLY124    | INDICATOR     | 54   | MA110  | PROTECTION |
| 17   | TLY124    | INDICATOR     | 55   | MA110  | PROTECTION |
| 18   | TLY124    | INDICATOR     | 56   | MA110  | PROTECTION |
| 19   | TLY124    | INDICATOR     | 57   | MA110  | PROTECTION |
| 20   | TLY124    | INDICATOR     | 58   | MA110  | PROTECTION |
| 21   | TLY124    | INDICATOR     | 59   | MA110  | PROTECTION |
| 22   | TLY124    | INDICATOR     | 60   | MA110  | PROTECTION |
| 23   | TLY124    | INDICATOR     | 61   | MA110  | PROTECTION |
| 24   | TLY124    | INDICATOR     | 62   | MA110  | PROTECTION |
| 25   | TLY124    | INDICATOR     | 63   | MA110  | PROTECTION |
| 26   | MA110     | PROTECTION    | 64   | TLY124 | INDICATOR  |
| 27   | MA110     | PROTECTION    | 65   | TLY124 | INDICATOR  |
| 28   | MA110     | PROTECTION    | 66   | TLY124 | INDICATOR  |
| 29   | MA110     | PROTECTION    | 67   | TLY124 | INDICATOR  |
| 30   | TLY124    | INDICATOR     | 68   | TLY124 | INDICATOR  |
| 31   | TLY124    | INDICATOR     | 69   | TLY124 | INDICATOR  |

HW board (MANUAL CONTROL)



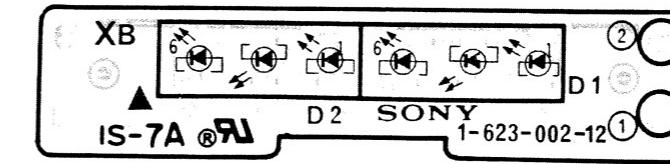
HX board (INPUT SELECT)



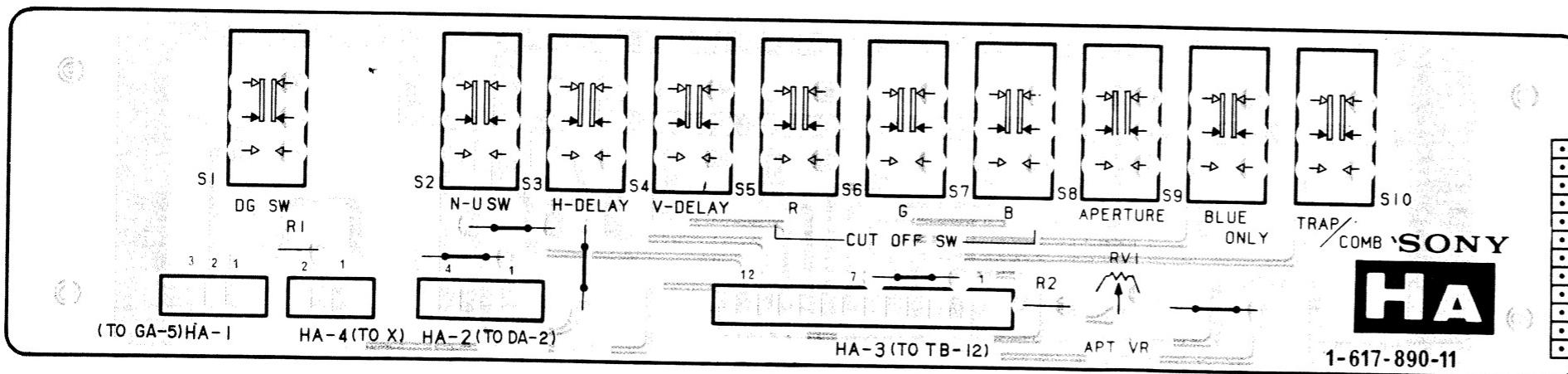
HH board (MANUAL VOLUME)



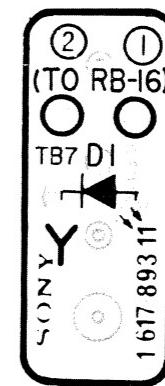
XB board (TALLY)



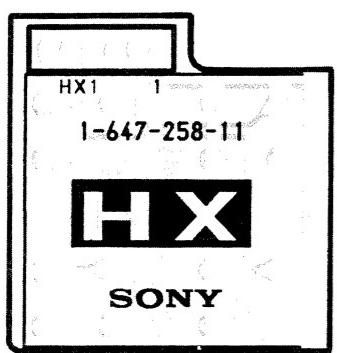
HA board (PANEL CONTROL)



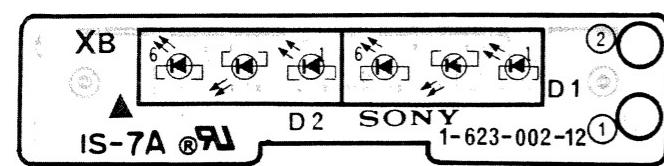
Y board (POWER LED)



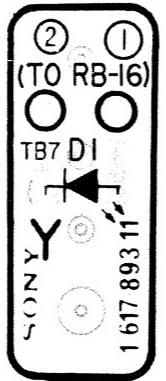
HX board (INPUT SELECT)



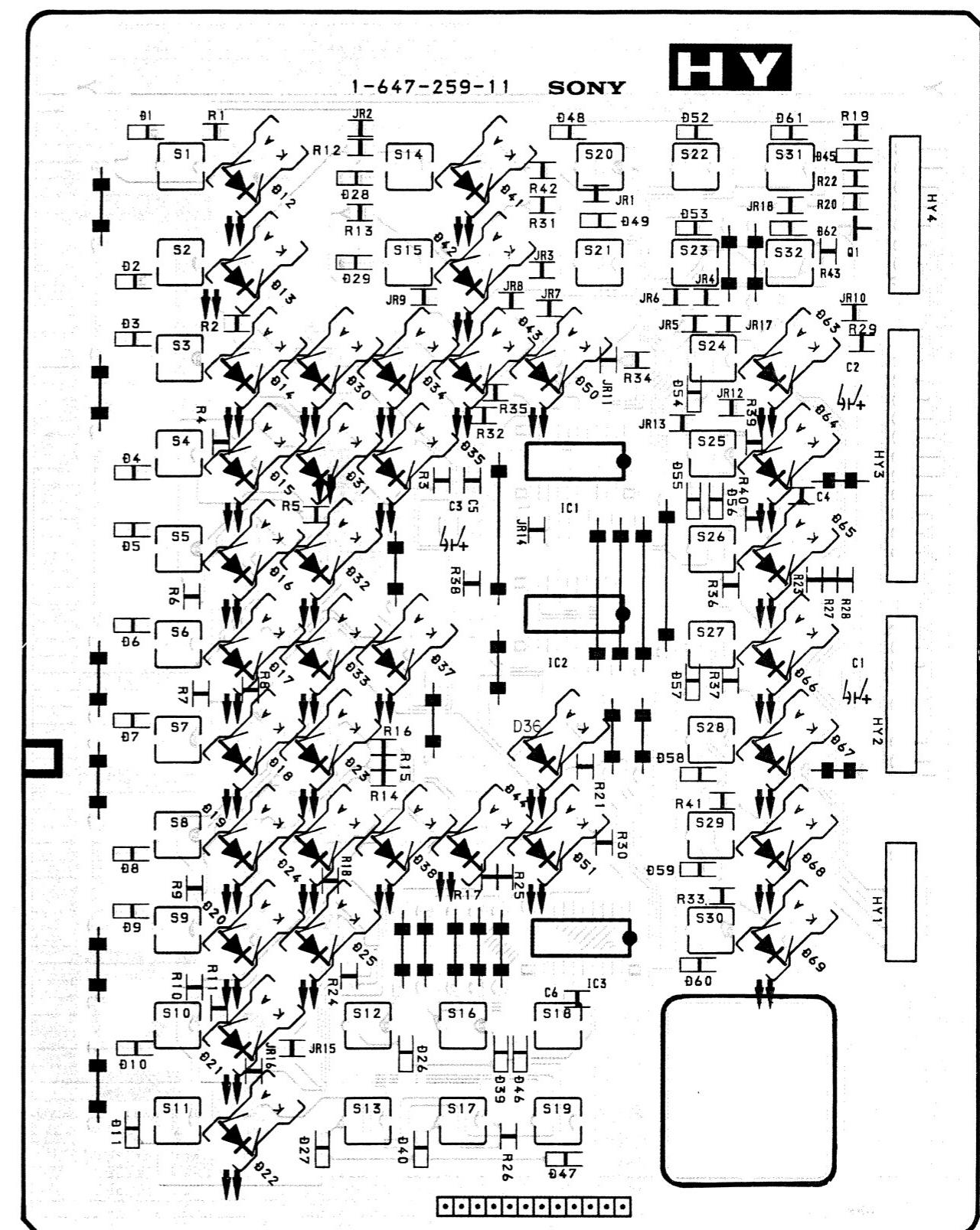
XB board (TALLY)



Y board (POWER LED)



HY board (CONTROL FUNCTION SELECT)

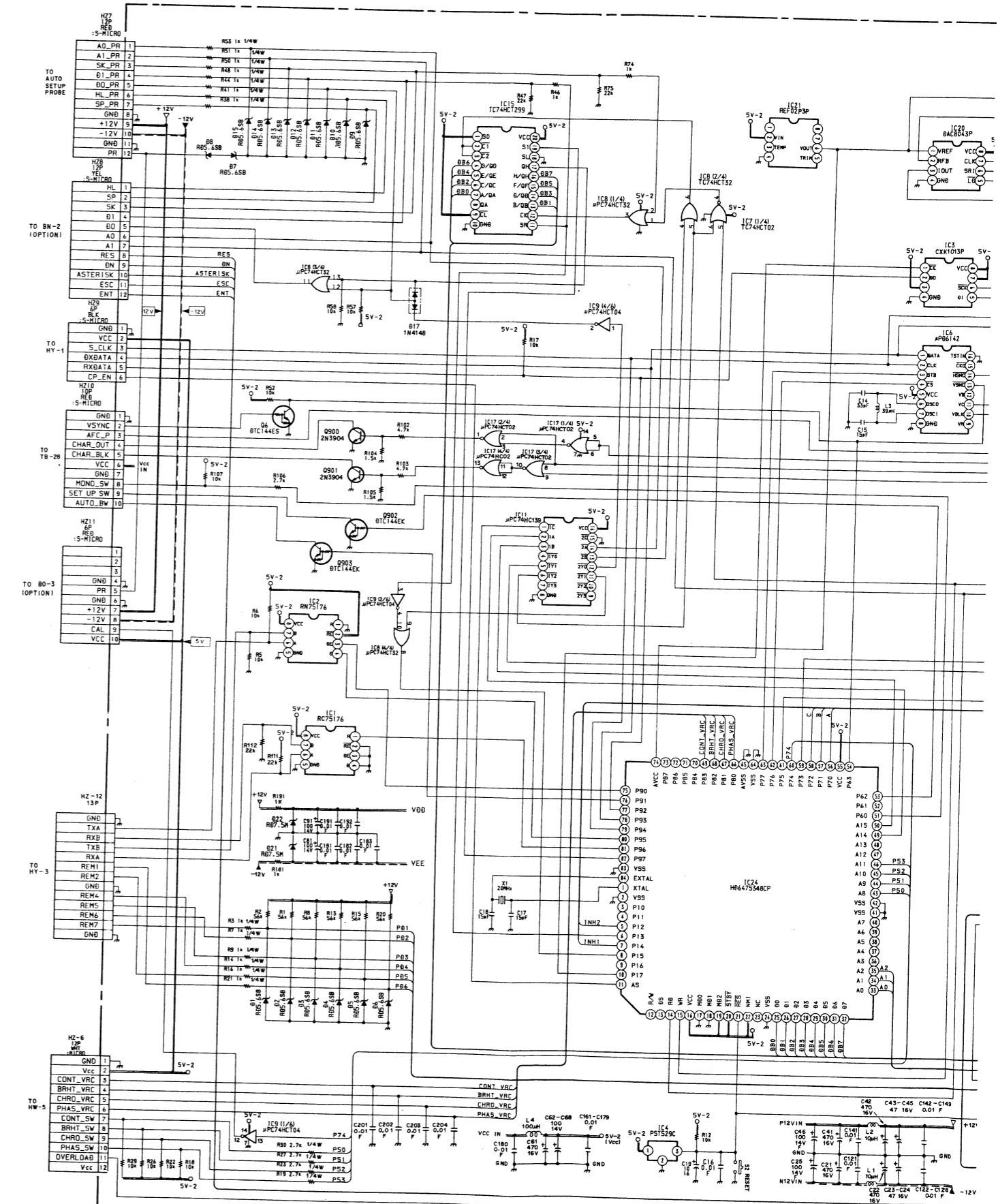


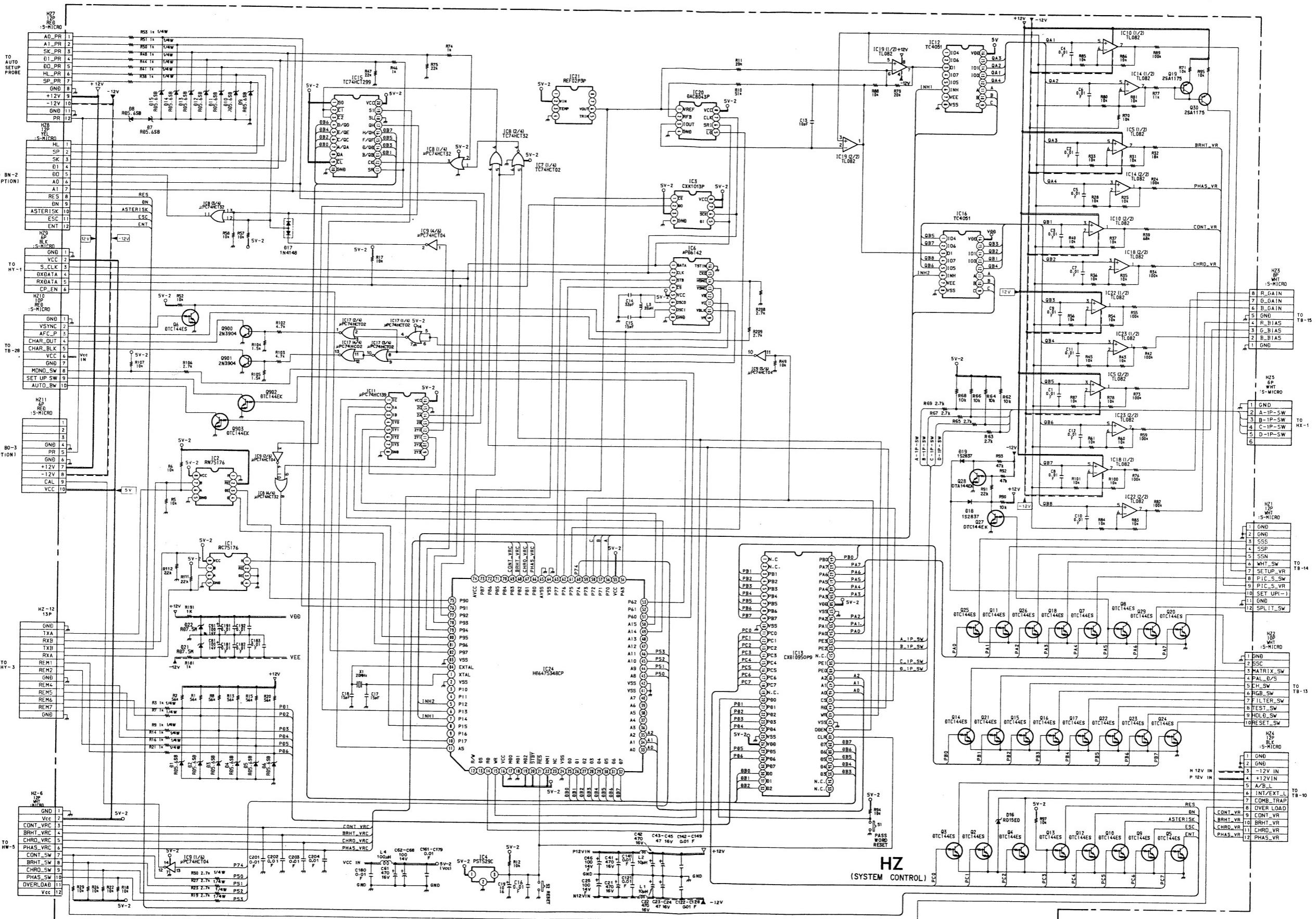
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

## HZ board (SYSTEM CONTROL)

HZ BOARD

| IC 1  | SN75176BP       | RECEIVER       |
|-------|-----------------|----------------|
| 2     | SN75176BP       | TRANSMITTER    |
| 3     | X25040          | NV RAM         |
| 4     | PST529C         | RESET          |
| 5     | TL082M          | OP AMP         |
| 6     | uPD6142G-101    | ON SCREEN D    |
| 7     | TC74HCT02AF     | NOR GATE       |
| 8     | TC74HCT32AF     | OR GATE        |
| 9     | TC74HCT04AF     | INVERTOR       |
| 10    | TL082M          | SAMPLE HOLD    |
| 11    | TC74HCT139AF    | DECODER        |
| 12    | MC14051BF       | DE-MULTIPLEXER |
| 13    | CXD10950        | I/O EXPANDER   |
| 14    | TL082M          | SAMPLE HOLD    |
| 15    | TC74HC298AF     | SHIFT REGISTER |
| 16    | MC14051BF       | DE-MULTIPLEXER |
| 17    | TC74HCT02AF     | NOR GATE       |
| 18    | TL082M          | SAMPLE HOLD    |
| 19    | TL082M          | SAMPLE HOLD    |
| 20    | DAC8043GP       | D/A CONNECTOR  |
| 21    | REF02EZ         | REF. VOLTAGE   |
| 22    | TL082M          | SAMPLE HOLD    |
| 23    | TL082M          | SAMPLE HOLD    |
| 24    | HD6475368CP-BVM | CPU            |
| 0 2   | DTC144EK        | OUTPUT BUFFER  |
| 3     | DTC144EK        | OUTPUT BUFFER  |
| 4     | DTC144EK        | OUTPUT BUFFER  |
| 5     | DTC144EK        | OUTPUT BUFFER  |
| 6     | DTC144EK        | BUFFER         |
| 7     | DTC144EK        | OUTPUT BUFFER  |
| 8     | DTC144EK        | OUTPUT BUFFER  |
| 9     | DTC144EK        | OUTPUT BUFFER  |
| 10    | DTC144EK        | OUTPUT BUFFER  |
| 11    | DTC144EK        | OUTPUT BUFFER  |
| 12    | DTC144EK        | OUTPUT BUFFER  |
| 13    | DTC144EK        | OUTPUT BUFFER  |
| 14    | DTC144EK        | OUTPUT BUFFER  |
| 15    | DTC144EK        | OUTPUT BUFFER  |
| 16    | DTC144EK        | OUTPUT BUFFER  |
| 17    | DTC144EK        | OUTPUT BUFFER  |
| 18    | DTC144EK        | OUTPUT BUFFER  |
| 19    | 2SA1226         | OUTPUT BUFFER  |
| 20    | DTC144EK        | OUTPUT BUFFER  |
| 21    | DTC144EK        | OUTPUT BUFFER  |
| 22    | DTC144EK        | OUTPUT BUFFER  |
| 23    | DTC144EK        | OUTPUT BUFFER  |
| 24    | DTC144EK        | OUTPUT BUFFER  |
| 25    | DTC144EK        | OUTPUT BUFFER  |
| 26    | DTC144EK        | OUTPUT BUFFER  |
| 27    | DTC144EK        | OUTPUT BUFFER  |
| 28    | DTC144EK        | OUTPUT BUFFER  |
| 29    | DTC144EK        | OUTPUT BUFFER  |
| 30    | 2SA1226         | OUTPUT BUFFER  |
| 9 0 0 | 2SC1623         | OUTPUT BUFFER  |
| 9 0 1 | 2SC1623         | OUTPUT BUFFER  |
| 9 0 2 | DTC144EK        | OUTPUT BUFFER  |
| 9 0 3 | DTC144EK        | OUTPUT BUFFER  |
| D 1   | RD5.6ES-T1B     | PROTECTION     |
| 2     | RD5.6ES-T1B     | PROTECTION     |
| 3     | RD5.6ES-T1B     | PROTECTION     |
| 4     | RD5.6ES-T1B     | PROTECTION     |
| 5     | RD5.6ES-T1B     | PROTECTION     |
| 6     | RD5.6ES-T1B     | PROTECTION     |
| 7     | RD5.6ES-T1B     | PROTECTION     |
| 8     | RD5.6ES-T1B     | PROTECTION     |
| 9     | RD5.6ES-T1B     | PROTECTION     |
| 10    | RD5.6ES-T1B     | PROTECTION     |
| 11    | RD5.6ES-T1B     | PROTECTION     |
| 12    | RD5.6ES-T1B     | PROTECTION     |
| 13    | RD5.6ES-T1B     | PROTECTION     |
| 14    | RD5.6ES-T1B     | PROTECTION     |
| 15    | RD5.6ES-T1B     | PROTECTION     |
| 17    | 1S2835          | SWITCH         |
| 18    | 1S2837          | SWITCH         |
| 19    | 1S2837          | SWITCH         |
| 21    | RD7.5M-T1B2     | -7.5V REG      |
| 22    | RD7.5M-T1B2     | +7.5V REG      |



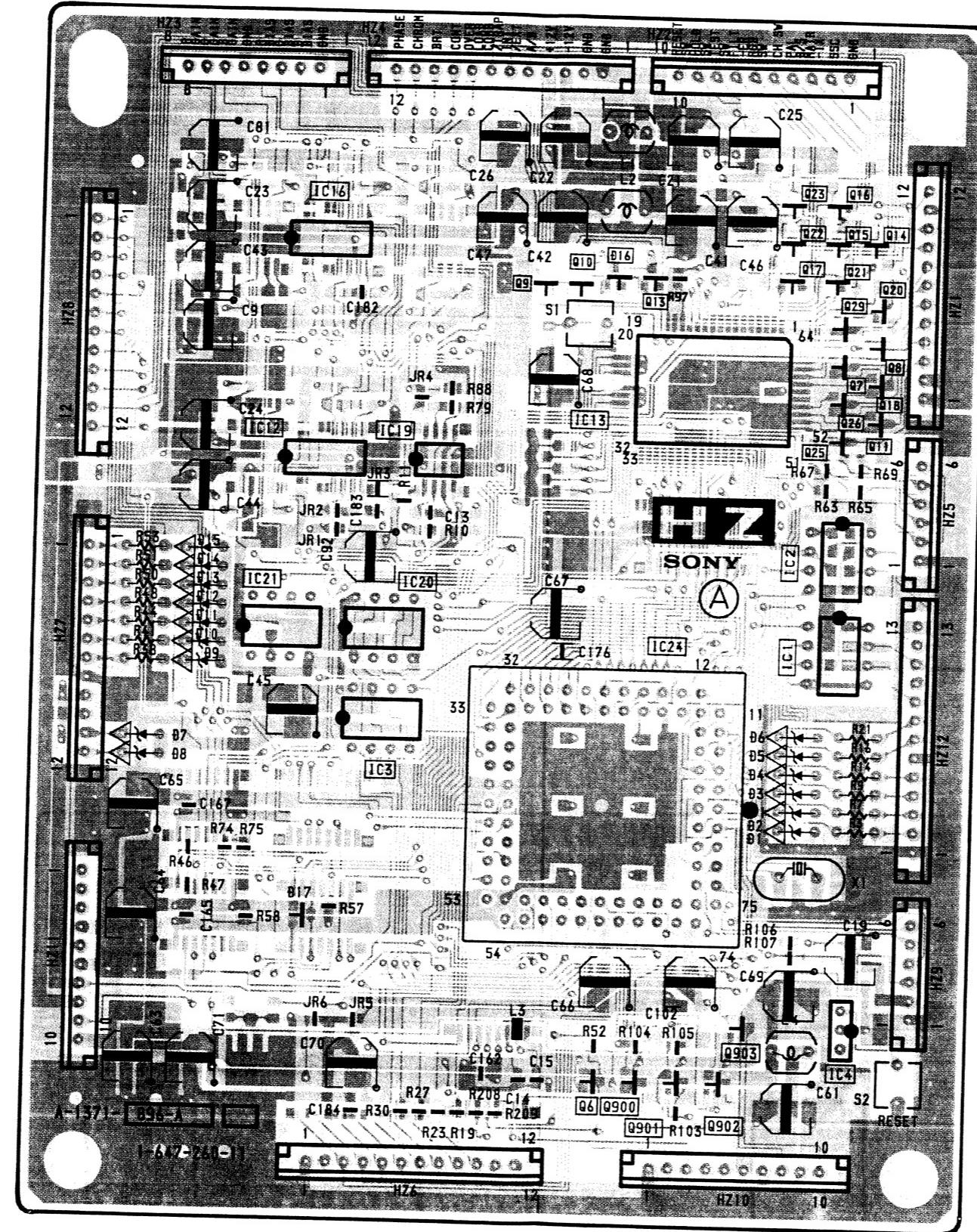


Hz Hz

## HZ board (SYSTEM CONTROL)

**- CONDUCTOR SIDE -**

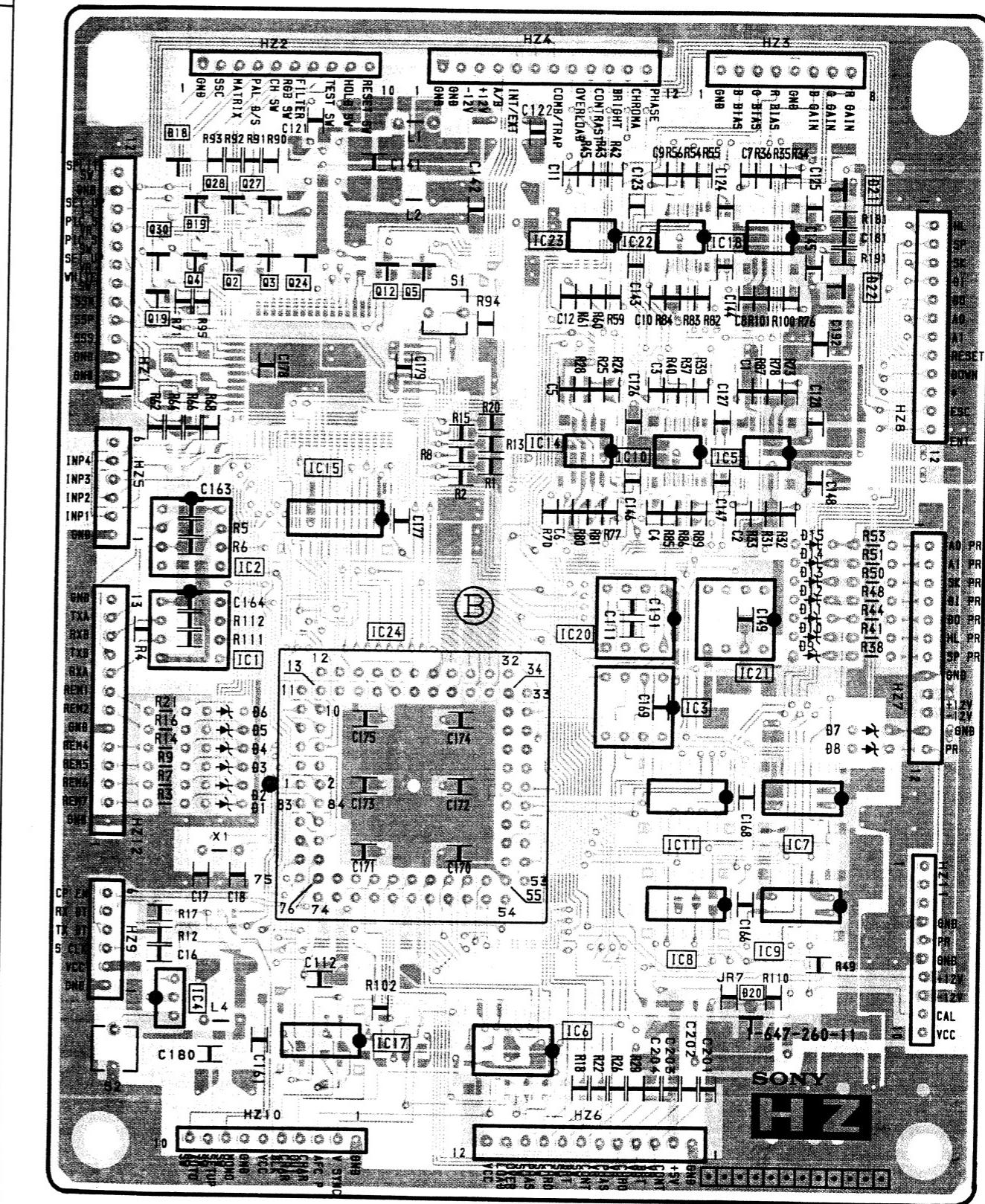
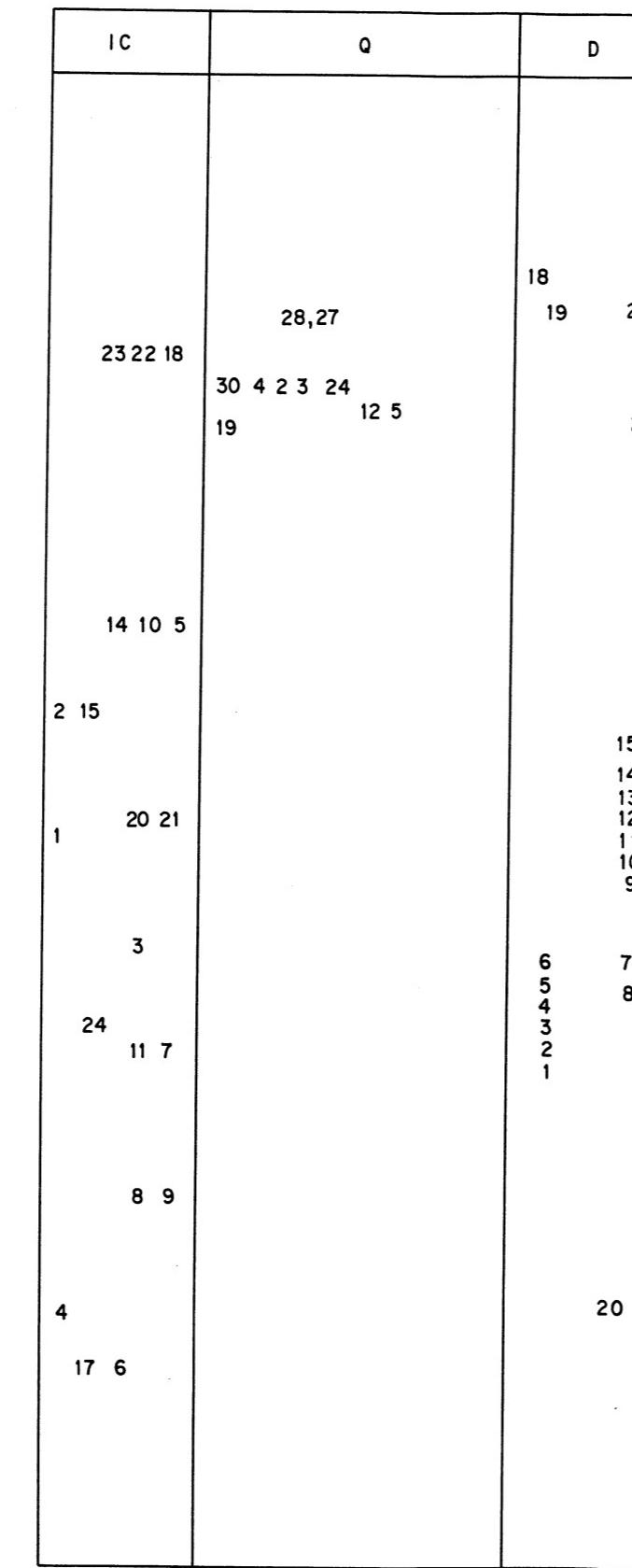
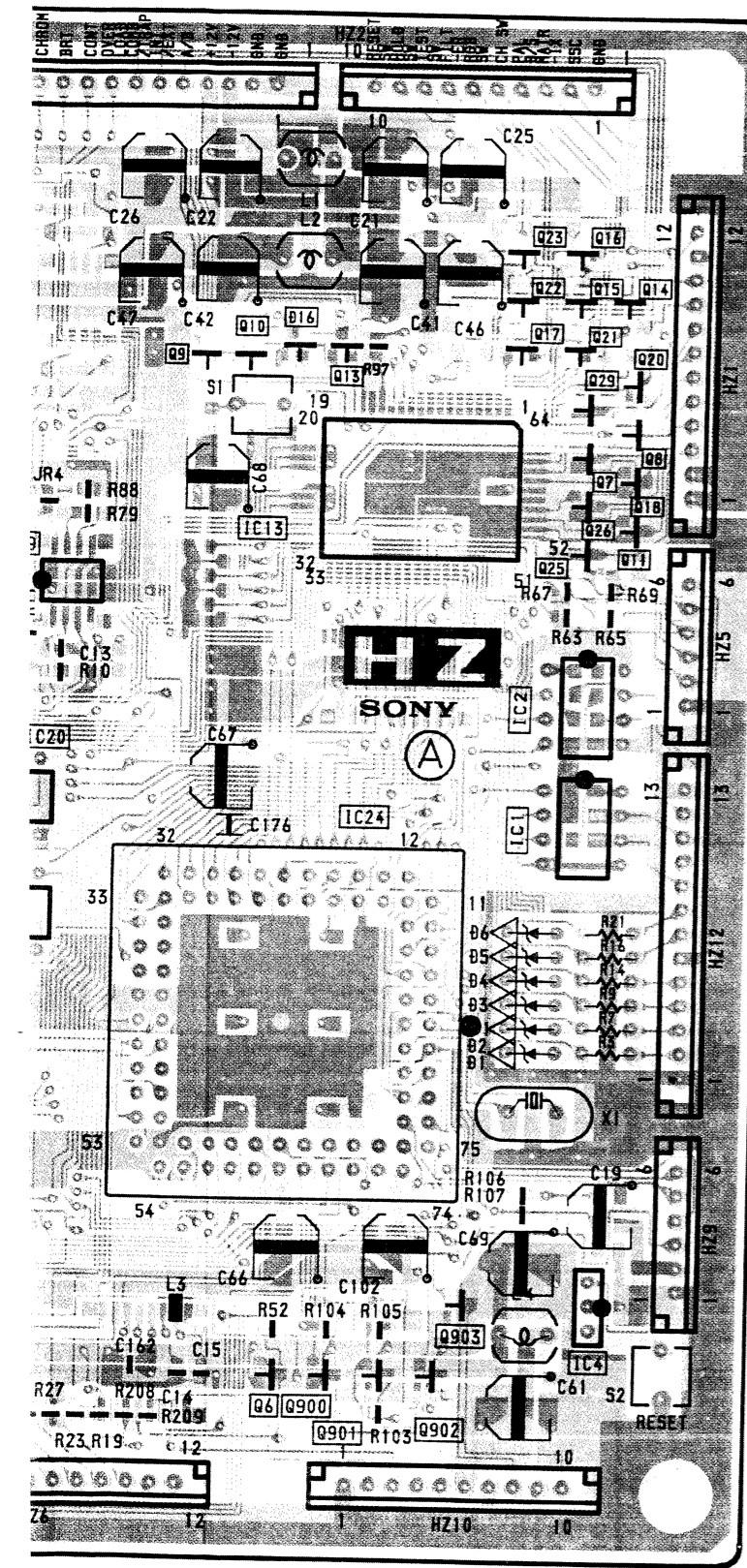
| I C   | Q  | D                                     |
|-------|--|---------------------------------------|
|       |  |                                       |
| 16    | 23 16<br>22 15 14<br>9 10 13 17 21<br>29<br>8<br>7<br>18<br>26<br>25 | 16                                    |
| 12 19 |  |                                       |
| 21 20 | 2<br>1   | 15<br>14<br>13<br>12<br>11<br>10<br>9 |
| 3     |  | 7<br>8                                |
| 24    |  | 6<br>5<br>4<br>3<br>2<br>1            |
| 4     | 903  | 17                                    |
|       | 6 900 901 902  |                                       |



**— COMPONENT SIDE —**

| I C      | Q                 | D          |
|----------|-------------------|------------|
|          |                   | 18         |
| 23 22 18 | 28, 27            | 19 21      |
|          | 30 4 2 3 24<br>19 | 12 5<br>22 |
| 14 10 5  |                   |            |
| 2 15     |                   | 15         |
| 1 20 21  |                   | 14         |
|          |                   | 13         |
|          |                   | 12         |
|          |                   | 11         |
|          |                   | 10         |
|          |                   | 9          |
| 3        |                   | 6          |
| 24       |                   | 7          |
| 11 7     |                   | 8          |
|          |                   | 5          |
|          |                   | 4          |
|          |                   | 3          |
|          |                   | 2          |
|          |                   | 1          |
| 8 9      |                   |            |
| 4        |                   | 20         |
| 17 6     |                   |            |

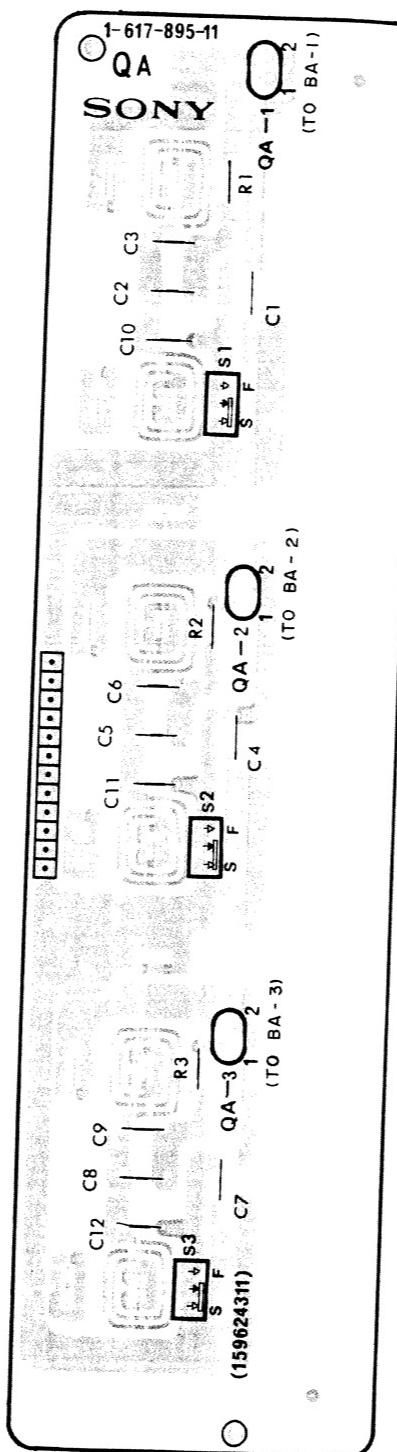
## — COMPONENT SIDE —



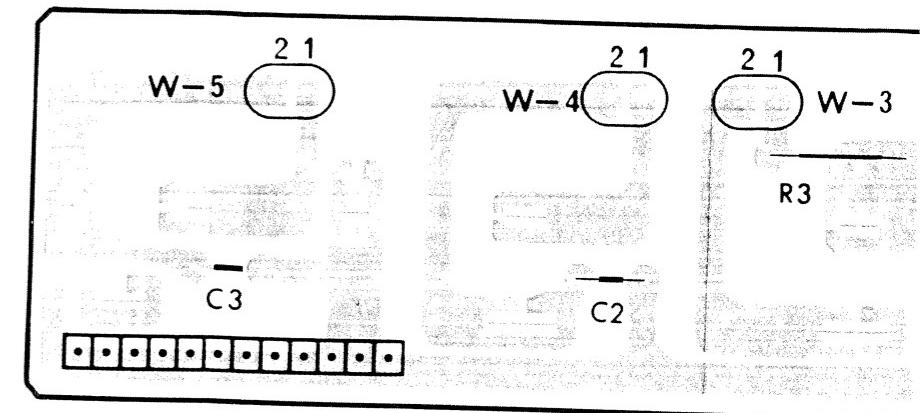
: Pattern from the side which enables seeing.

: Pattern of the rear side.

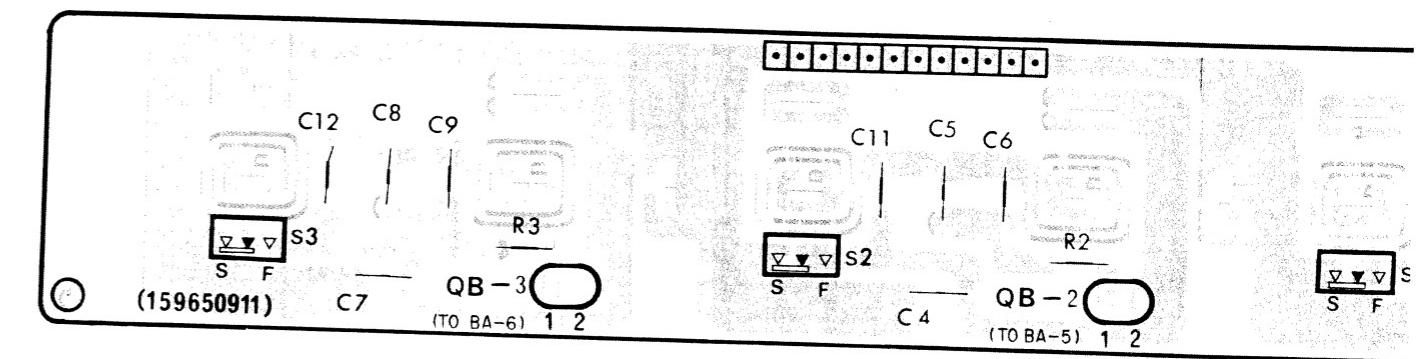
**QA board (COMPOSITE VIDEO INPUT)**



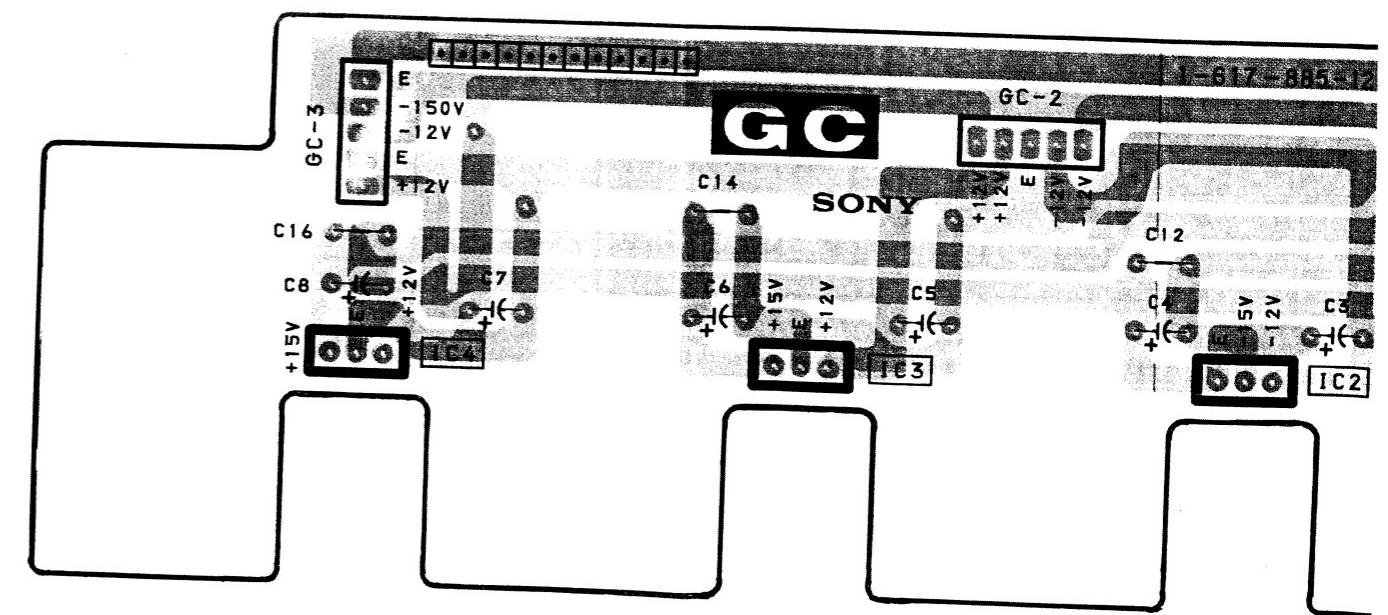
W board (RGB/COMPONENT)



## QB board (RGB/COMPONENT INPUT)

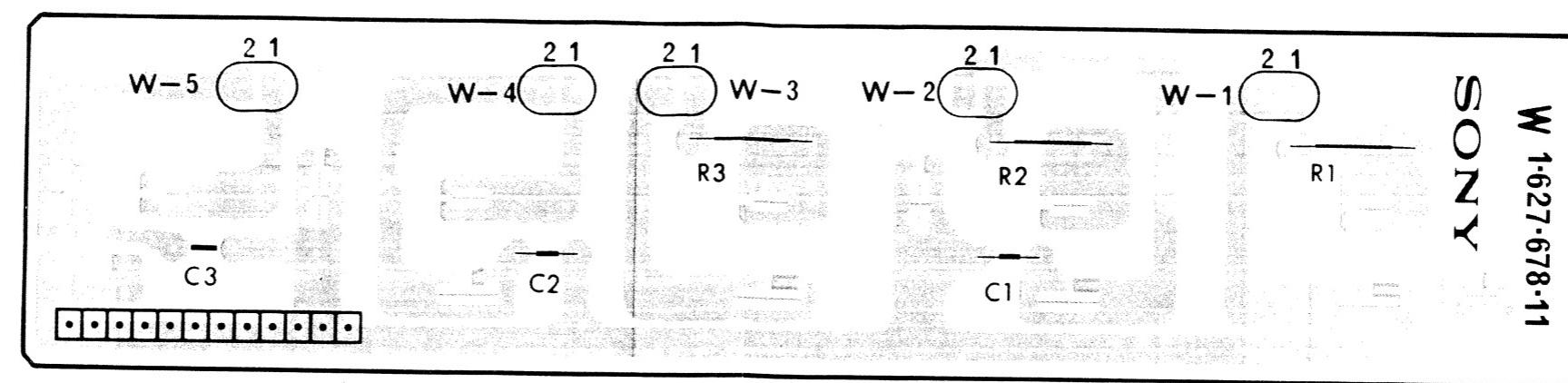


GC board (REC)

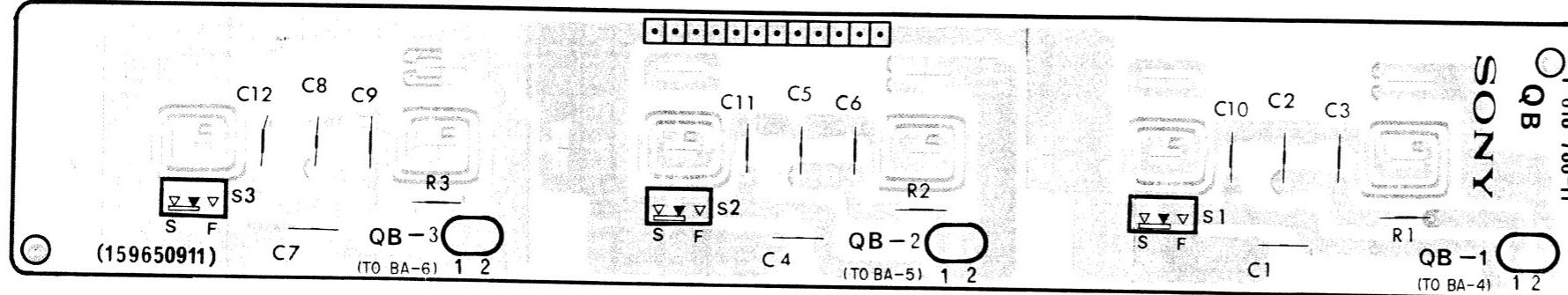


COMPOSITE VIDEO INPUT)

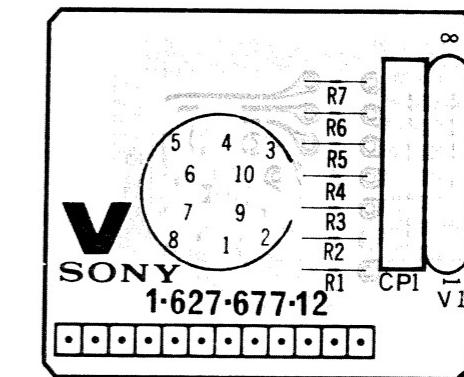
W board (RGB/COMPONENT)



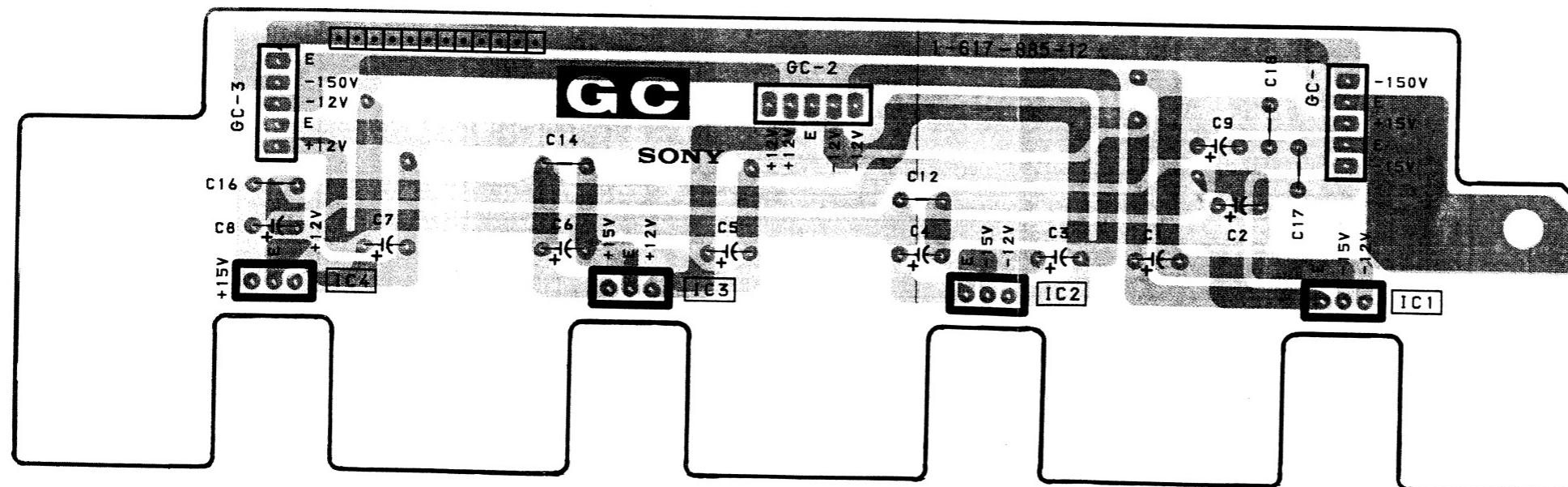
QB board (RGB/COMPONENT INPUT)



V board (REMOTE)

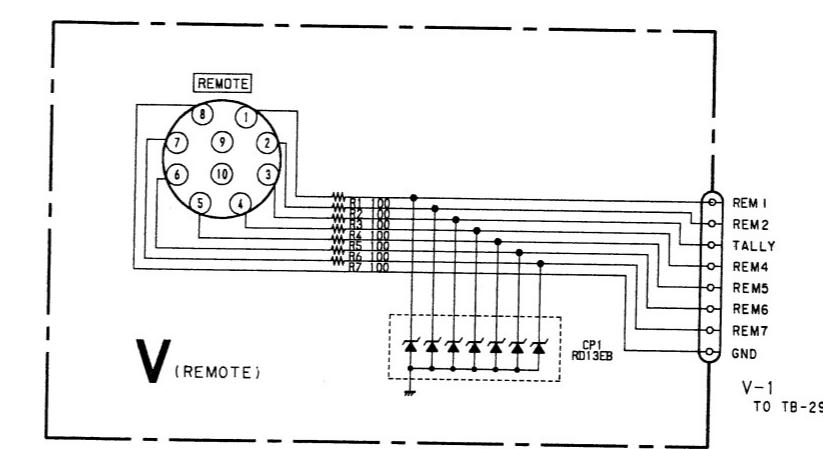
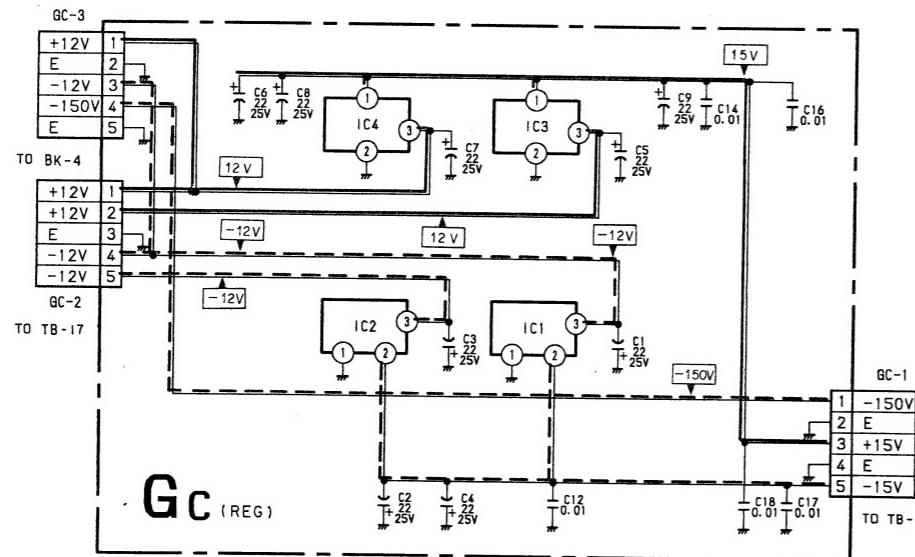
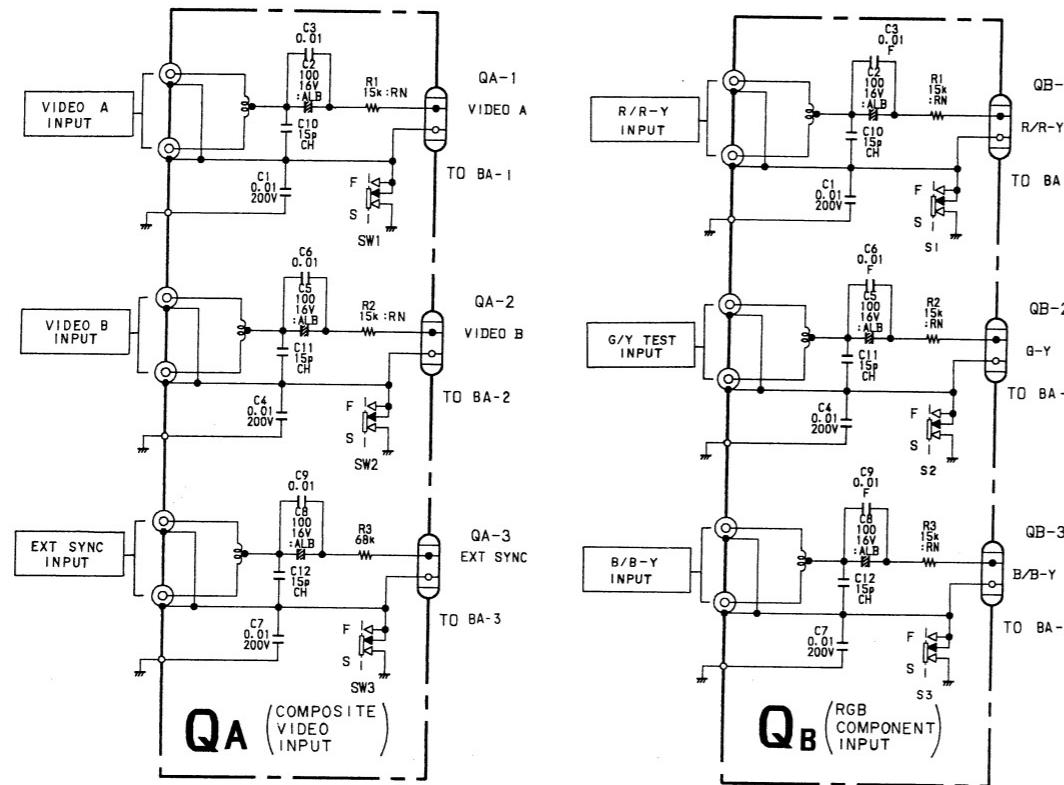


GC board (REG)

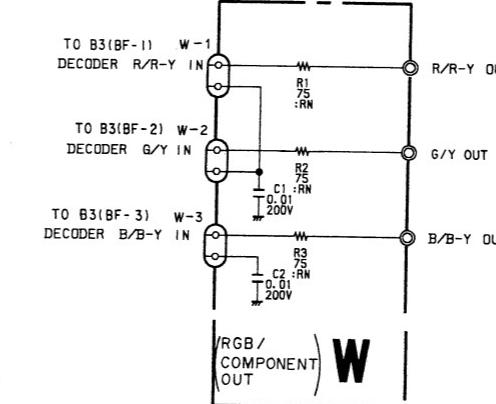
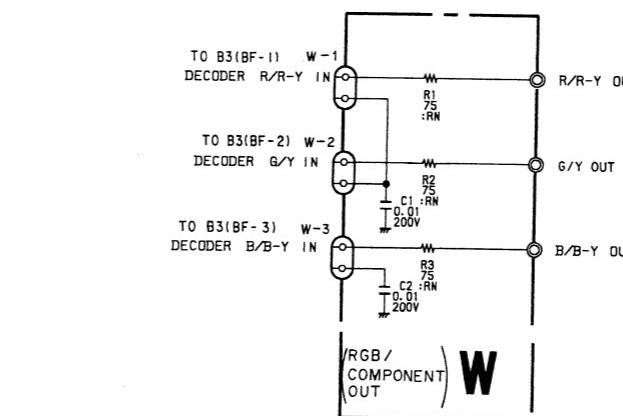


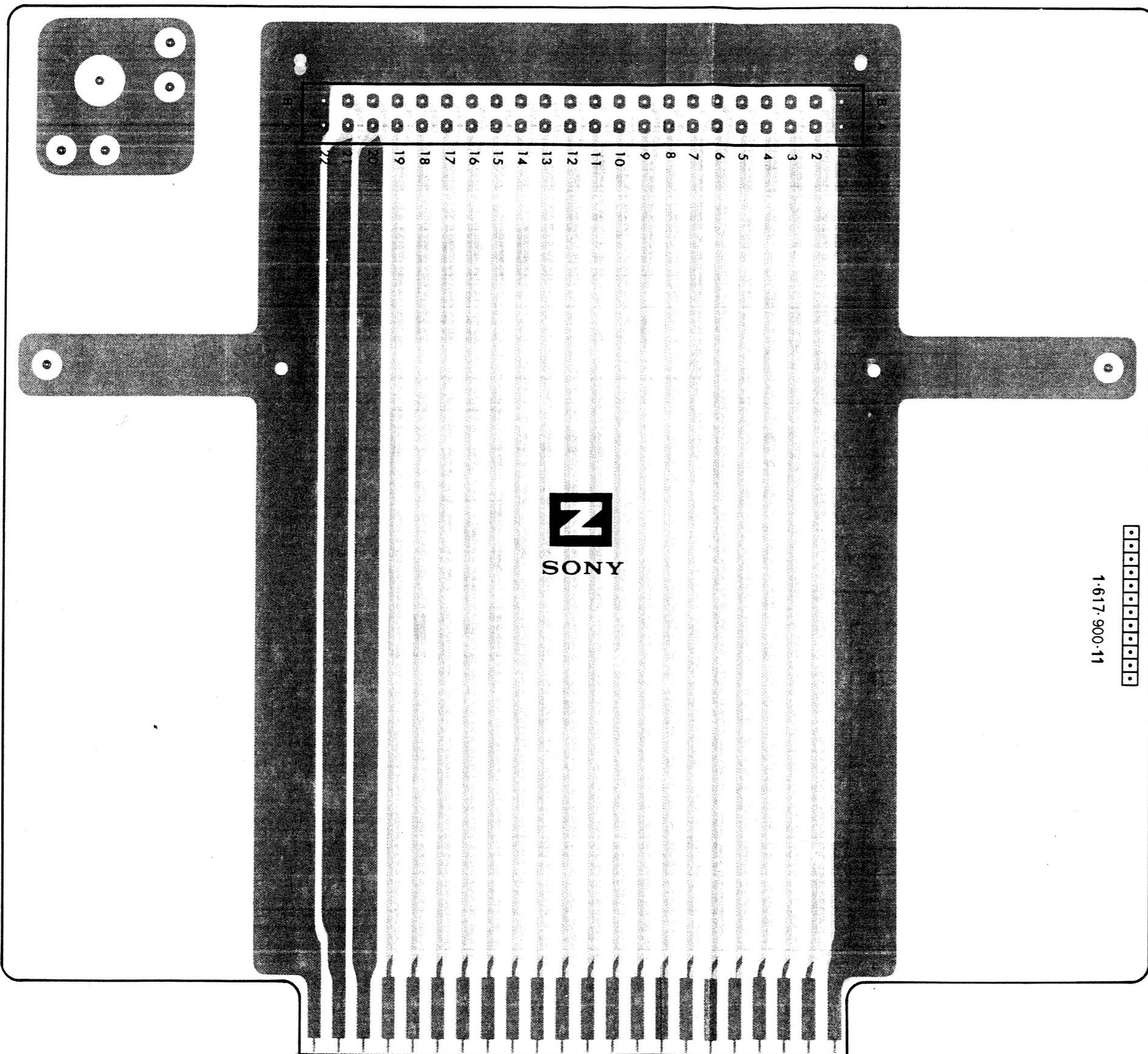
GC, QA, QB, V, W      GC, QA, QB, V, W

GC board (REG) QA board (COMPOSITE VIDEO INPUT) QB board (RGB/COMPONENT INPUT)  
 V board (REMOTE) W board (RGB/COMPONENT)



| GC BOARD |          |          |
|----------|----------|----------|
| IC       | 1        | uPD7912H |
| 2        | uPD7912H | -12V REG |
| 3        | uPD7812H | +12V REG |
| 4        | uPD7812H | +12V REG |





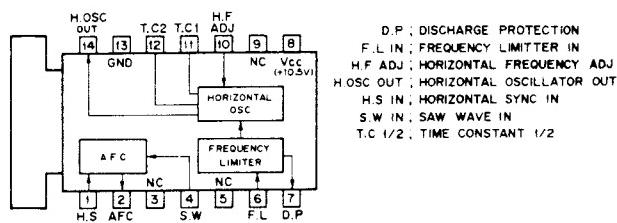
5-109

5-110

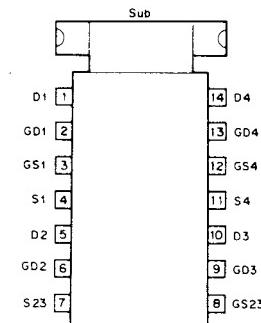
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

## 5-4. SEMICONDUCTORS

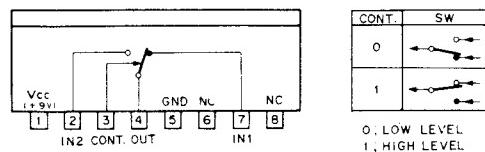
**CX-158 (SONY)**  
HORIZONTAL DEFLECTION OSCILLATOR/FREQUENCY LIMITER  
— TOP VIEW —



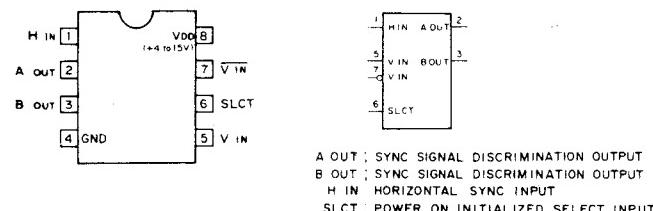
**CX-718D (SONY)**  
SRG FET IC  
— TOP VIEW —



**CX20061 (SONY)**  
ANALOG SWITCH  
— SIDE VIEW —



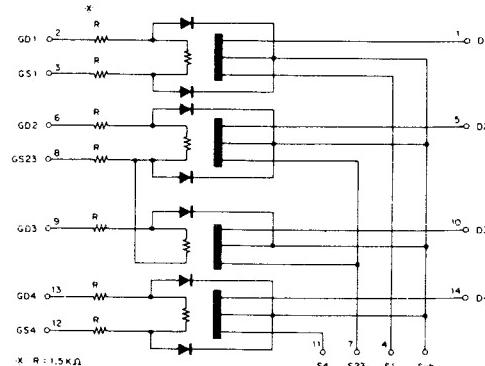
**CX23025 (SONY)**  
C-MOS TV-VTR SYNC SIGNAL DISCRIMINATOR  
— TOP VIEW —



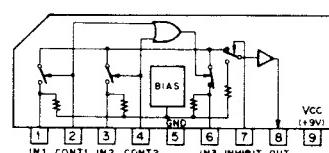
| POWER ON INITIALIZED |          |          |
|----------------------|----------|----------|
| SLCT INPUT           | A OUTPUT | B OUTPUT |
| 1                    | 0        | 1        |
| 0                    | 1        | 0        |

| DISCRIMINATION |         |   |
|----------------|---------|---|
| V SYNC INPUT   | OUTPUTS |   |
| FREQUENCY      | A       | B |
| 50Hz           | 0       | 1 |
| 60Hz           | 1       | 0 |

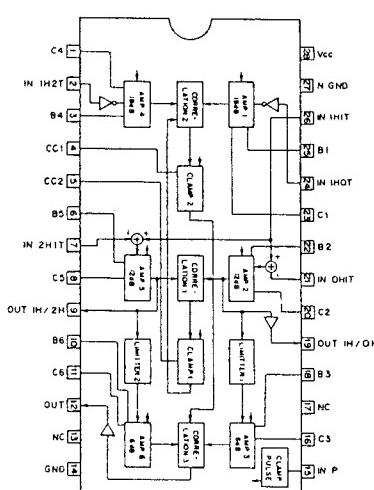
0 ; LOW LEVEL  
1 ; HIGH LEVEL



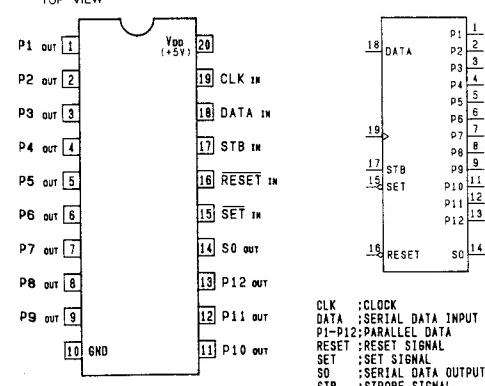
**CX894 (SONY)**  
3 INPUT SWITCH  
— SIDE VIEW —



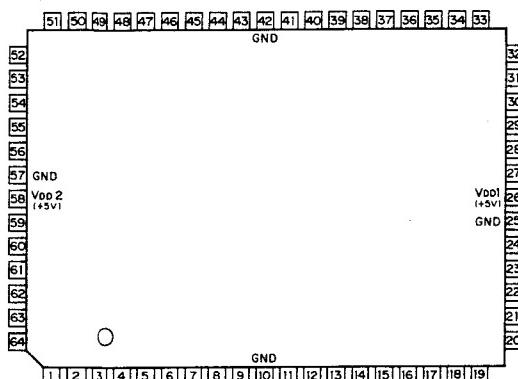
**CXA1539P**



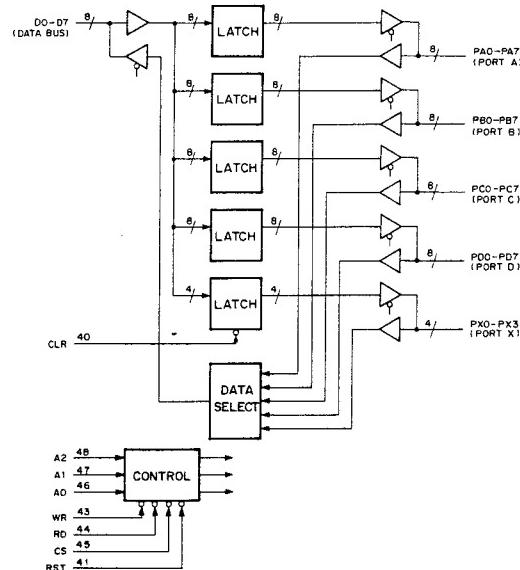
**CX7991 (SONY)**  
C-MOS 12-BIT SERIAL TO PARALLEL CONVERTER  
— TOP VIEW —



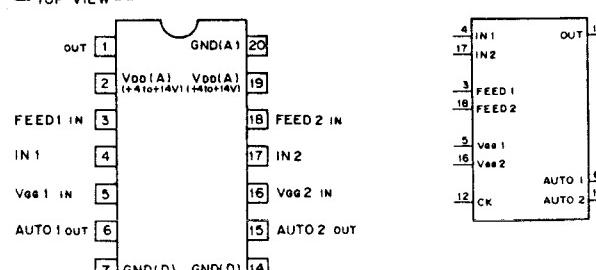
CXD1095Q (SONY) FLAT PACKAGE  
C-MOS I/O PORT EXPANDER  
— TOP VIEW —



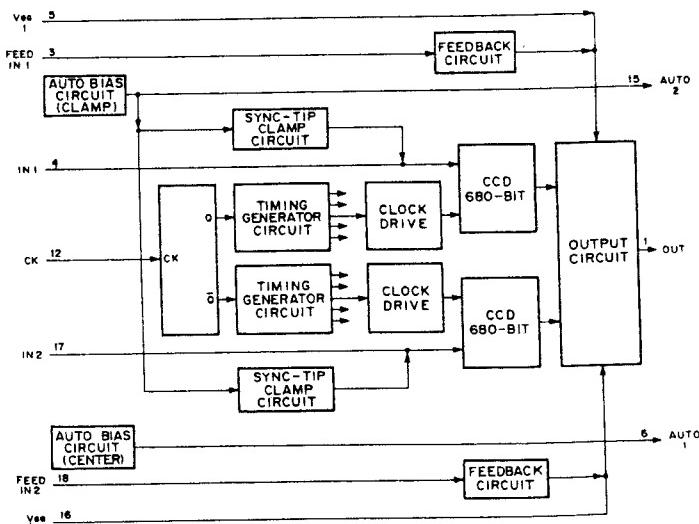
| PIN NO. | IN | OUT | SYMBOL | PIN NO. | IN | OUT     | SYMBOL | PIN NO. | IN | OUT | SYMBOL | PIN NO. | IN        | OUT | SYMBOL |
|---------|----|-----|--------|---------|----|---------|--------|---------|----|-----|--------|---------|-----------|-----|--------|
| 1       |    |     | NC     | 17      | 0  | 0       | PC6    | 33      |    |     | NC     | 49      | 0         | 0   | PX0    |
| 2       |    |     | NC     | 18      | 0  | 0       | PC7    | 34      |    |     | NC     | 50      | 0         | 0   | PX1    |
| 3       | 0  | 0   | PB1    | 19      |    |         | NC     | 35      | 0  | 0   | D3     | 51      |           |     | NC     |
| 4       | 0  | 0   | PB2    | 20      | 0  | 0       | PDO    | 36      | 0  | 0   | D4     | 52      | 0         | 0   | PX2    |
| 5       | 0  | 0   | PB3    | 21      | 0  | 0       | PD1    | 37      | 0  | 0   | D5     | 53      | 0         | 0   | PX3    |
| 6       | 0  | 0   | PB4    | 22      | 0  | 0       | PD2    | 38      | 0  | 0   | D6     | 54      | 0         | 0   | PA0    |
| 7       | 0  | 0   | PB5    | 23      | 0  | 0       | PD3    | 39      | 0  | 0   | D7     | 55      | 0         | 0   | PA1    |
| 8       | 0  | 0   | PB6    | 24      | 0  | 0       | PD4    | 40      | 0  | 0   | CLR    | 56      | 0         | 0   | PA2    |
| 9       | 0  | 0   | PB7    | 25      |    |         | GND    | 41      | 0  | 0   | RST    | 57      |           |     | GND    |
| 10      |    |     | GND    | 26      | 0  | VDD(5V) | 42     |         |    | GND | 58     | 0       | VDD(3.5V) |     |        |
| 11      | 0  | 0   | PC0    | 27      | 0  | 0       | PDO    | 43      | 0  | 0   | WR     | 59      | 0         | 0   | PA3    |
| 12      | 0  | 0   | PC1    | 28      | 0  | 0       | PD6    | 44      | 0  | 0   | RD     | 60      | 0         | 0   | PA4    |
| 13      | 0  | 0   | PC2    | 29      | 0  | 0       | PD7    | 45      | 0  | 0   | CS     | 61      | 0         | 0   | PA5    |
| 14      | 0  | 0   | PC3    | 30      | 0  | 0       | DO     | 46      | 0  | 0   | A0     | 62      | 0         | 0   | PA6    |
| 15      | 0  | 0   | PC4    | 31      | 0  | 0       | D1     | 47      | 0  | 0   | A1     | 63      | 0         | 0   | PA7    |
| 16      | 0  | 0   | PC5    | 32      | 0  | 0       | D2     | 48      | 0  | 0   | A2     | 64      | 0         | 0   | PBO    |



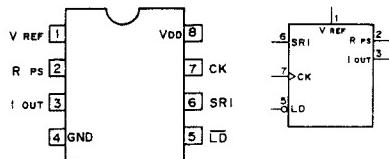
CXL1009P (SONY)  
C-MOS CCD SIGNAL PROCESSOR FOR TBC  
— TOP VIEW —



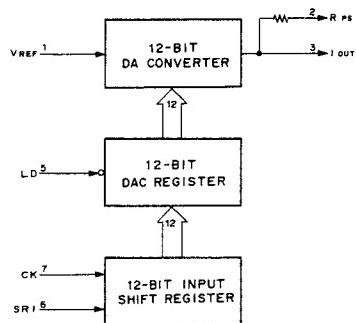
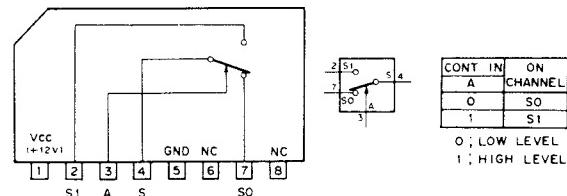
OUT : OUT PUT  
 FEED 1/2 IN : FEEDBACK INPUT 1/2  
 IN 1/2 : INPUT 1/2  
 Vee 1/2 IN : GATE INPUT 1/2  
 AUTO 1/2 OUT : AUTO BIAS OUTPUT 1/2  
 CK IN : CLOCK INPUT  
 VCL : POWER SUPPLY 2(DIGITAL)  
 VDD(A)/(D) : POWER SUPPLY 1(ANALOG)/(DIGITAL)  
 GND(A)/(D) : GROUND(ANALOG)/(DIGITAL)



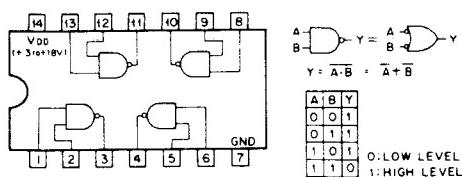
DAC8043GP (PMI)  
C-MOS 12-BIT SERIAL INPUT D/A CONVERTER  
— TOP VIEW —



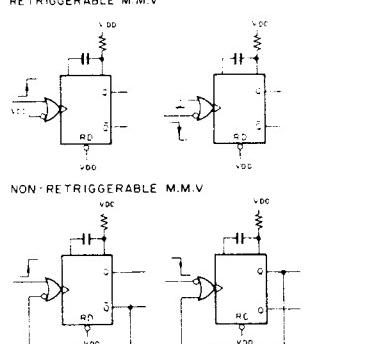
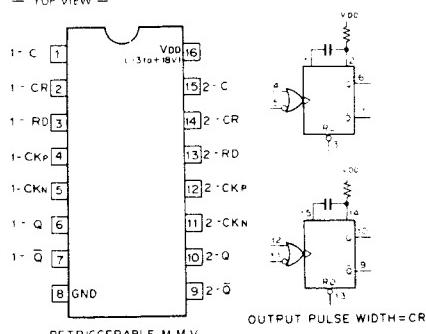
LA7016 (SANYO)  
ELECTRONIC SWITCH  
— SIDE VIEW —



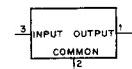
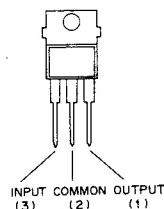
HD14011BP (HITACHI)  
MC14011BCP (MOTOROLA)  
TC4011BP (TOSHIBA)  
uPD4011BC (NEC)  
C-MOS 2-INPUT NAND GATE  
— TOP VIEW —



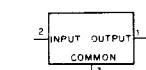
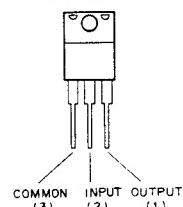
HD14538BP (HITACHI)  
C-MOS DUAL RETRIGGERABLE/NON RETRIGGERABLE  
MONOSTABLE MULTIVIBRATOR  
— TOP VIEW —



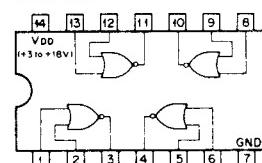
LM7812CT  
XRA17809T  
POSITIVE VOLTAGE REGULATOR (500mA)  
— FRONT VIEW —



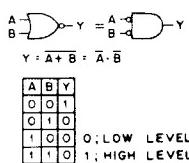
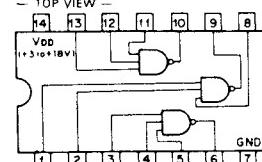
LM7912CT (NS) - 12V  
NEGATIVE VOLTAGE REGULATOR  
— FRONT VIEW —



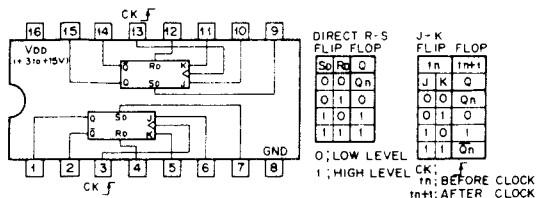
MC14001BCP (MOTOROLA)  
uPD4001BC (NEC)  
C-MOS 2-INPUT NOR GATE  
— TOP VIEW —



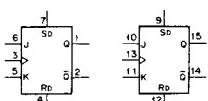
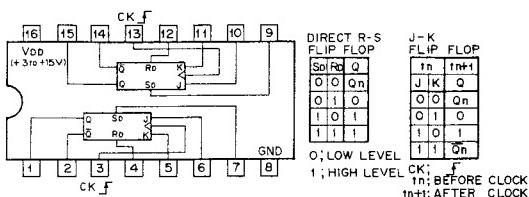
MC14023RCP (MOTOROLA)  
TC4023BP (TOSHIBA)  
C-MOS 3-INPUT NAND GATE  
— TOP VIEW —



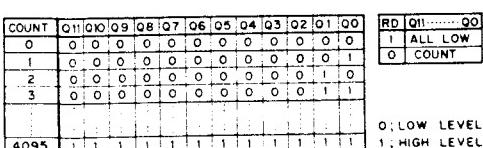
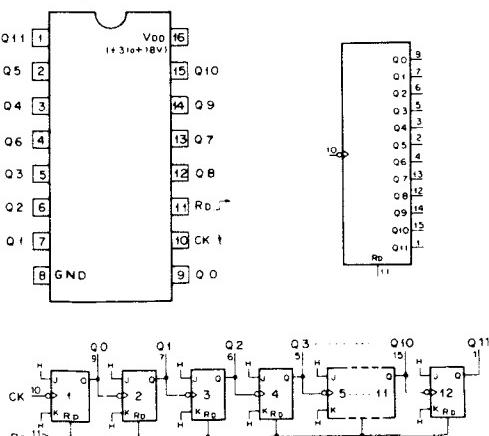
**MB84027B (FUJITSU)**  
TC504027BP (TOSHIBA)  
C-MOS J-K MASTER SLAVE FLIP-FLOP WITH DIRECT SET/RESET  
— TOP VIEW —



**MC14027BCP (MOTOROLA)**  
C-MOS J-K MASTER SLAVE FLIP-FLOP WITH DIRECT SET/RESET  
— TOP VIEW —

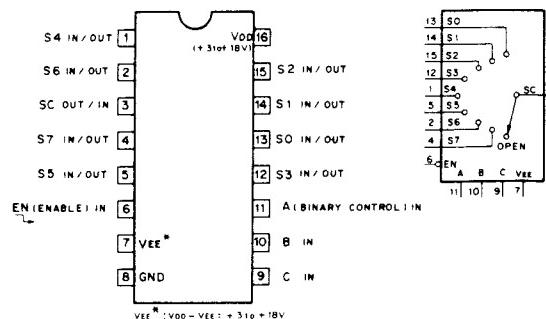


**MC14040BCP (MOTOROLA)**  
TC4040BP (TOSHIBA)  
C-MOS 12-STAGE RIPPLE CARRY BINARY COUNTER/DRIVER  
— TOP VIEW —



4095 1 1 1 1 1 1 1 1 1 1 1 1

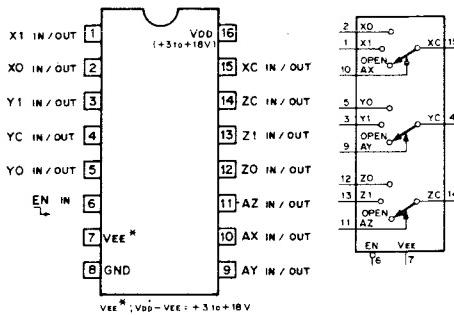
**MC14051BF**  
C-MOS 8-CHANNEL MULTIPLEXER/DEMULTIPLEXER  
— TOP VIEW —



| EN | C | B | A | "ON" CHANNEL |
|----|---|---|---|--------------|
| 0  | 0 | 0 | 0 | 0            |
| 0  | 0 | 0 | 1 | 1            |
| 0  | 0 | 1 | 0 | 2            |
| 0  | 0 | 1 | 1 | 3            |
| 0  | 1 | 0 | 0 | 4            |
| 0  | 1 | 0 | 1 | 5            |
| 0  | 1 | 1 | 0 | 6            |
| 0  | 1 | 1 | 1 | 7            |
| 1  | X | X | X | OPEN         |

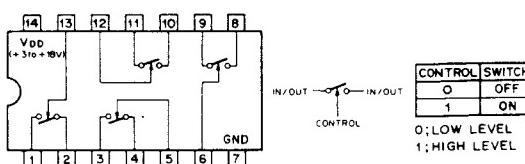
0; LOW LEVEL  
1; HIGH LEVEL  
X; DON'T CARE

**MC14053BCP (MOTOROLA)**  
TC4053BP  
TC4053BPHB (TOSHIBA)  
XRU4053BF  
C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER  
— TOP VIEW —



| CONT. INPUTS  | ON CHANNEL |
|---------------|------------|
| EN A (X,Y,Z)  | 0          |
| 0, LOW LEVEL  | 0          |
| 1, HIGH LEVEL | 1          |
| X, DONT CARE  | OPEN       |

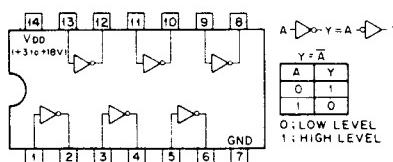
**MC14066BCP**  
uPD4066BC  
C-MOS BILATERAL ANALOG SWITCH  
— TOP VIEW —



| CONTROL | SWITCH |
|---------|--------|
| 0       | OFF    |
| 1       | ON     |

0; LOW LEVEL  
1; HIGH LEVEL

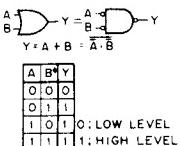
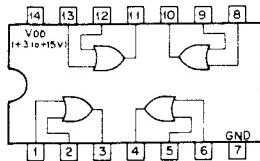
**MC14069UBCP**  
uPD4069UBC (NEC)  
C-MOS INVERTER  
— TOP VIEW —



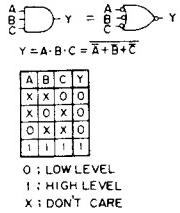
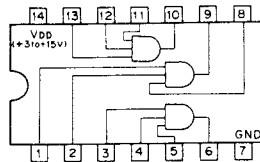
| A | Y = A |
|---|-------|
| 0 | 1     |
| 1 | 0     |

0; LOW LEVEL  
1; HIGH LEVEL

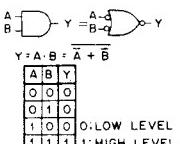
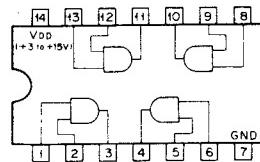
MC14071BCP (MOTOROLA)  
TC4071BP (TOSHIBA)  
uPD4071BC (NEC)  
C-MOS 2-INPUT OR GATE  
— TOP VIEW —



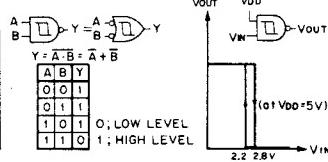
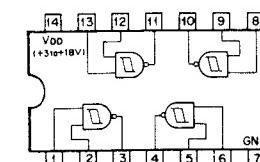
MC14073BCP (MOTOROLA)  
TC4073BP (TOSHIBA)  
uPD4073BC (NEC)  
C-MOS 3-INPUT POSITIVE AND GATE  
— TOP VIEW —



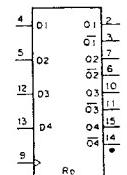
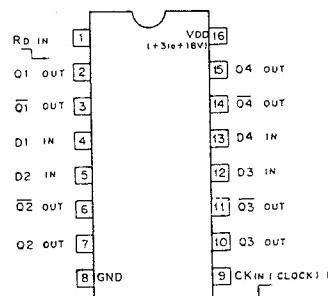
MC14081BCP (MOTOROLA)  
TC4081BP (TOSHIBA)  
uPD4081BC (NEC)  
C-MOS 2-INPUT AND GATE  
— TOP VIEW —



MC14093BCP  
TC4093BP (TOSHIBA)  
C-MOS 2-INPUT NAND SCHMITT TRIGGER  
— TOP VIEW —

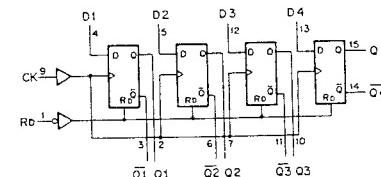


MC14175BCP (MOTOROLA)  
TC40175BP (TOSHIBA)  
C-MOS DECADE COUNTER/DIVIDER  
— TOP VIEW —

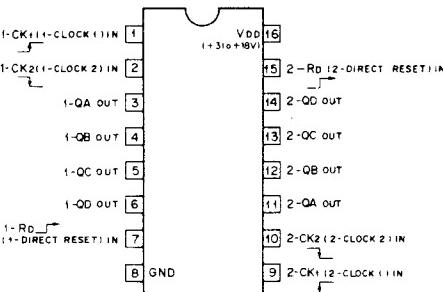


| CK | D | RD | Q | Q |
|----|---|----|---|---|
| 1  | 0 | 1  | 0 | 1 |
| 1  | 1 | 1  | 0 | 0 |
| L  | X | 1  | 0 | 0 |
| X  | X | 0  | 0 | 1 |

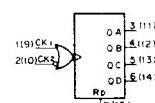
0 : LOW LEVEL  
1 : HIGH LEVEL  
X : DON'T CARE



MC14520BCP (MOTOROLA)  
TC4520BP (TOSHIBA)  
C-MOS DUAL 4-BIT BINARY UP COUNTER  
— TOP VIEW —



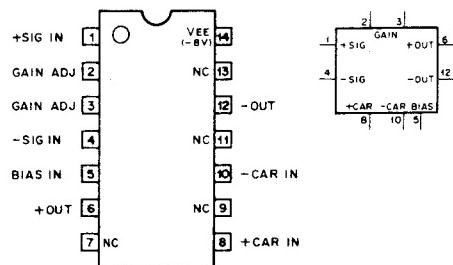
| STATE | OUTPUTS     |
|-------|-------------|
| 0     | Q0 Q1 Q2 Q3 |
| 1     | Q0 Q1 Q2 Q3 |
| 2     | Q0 Q1 Q2 Q3 |
| 3     | Q0 Q1 Q2 Q3 |
| 4     | Q0 Q1 Q2 Q3 |
| 5     | Q0 Q1 Q2 Q3 |
| 6     | Q0 Q1 Q2 Q3 |
| 7     | Q0 Q1 Q2 Q3 |
| 8     | Q0 Q1 Q2 Q3 |
| 9     | Q0 Q1 Q2 Q3 |
| 10    | Q0 Q1 Q2 Q3 |
| 11    | Q0 Q1 Q2 Q3 |
| 12    | Q0 Q1 Q2 Q3 |
| 13    | Q0 Q1 Q2 Q3 |
| 14    | Q0 Q1 Q2 Q3 |
| 15    | Q0 Q1 Q2 Q3 |



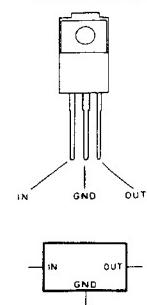
| 1(9)CK1 | 2(10)CK2 | Rd | Action            |
|---------|----------|----|-------------------|
| 1       | 0        | 0  | INCREMENT COUNTER |
| 0       | 1        | 0  | INCREMENT COUNTER |
| X       | 0        | 0  | NO CHANGE         |
| X       | 1        | 0  | NO CHANGE         |
| 1       | 0        | 0  | NO CHANGE         |
| 1       | 1        | 0  | NO CHANGE         |
| X       | X        | 1  | QA THRU QD = 0    |

5. DIAGRAMS

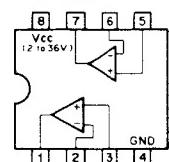
MC1496P (MOTOROLA)  
BALANCED MODULATOR/DEMODULATOR  
— TOP VIEW —



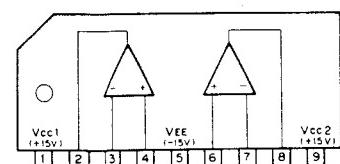
M5F78M12L (MITSUBISHI) + 12V  
POSITIVE VOLTAGE REGULATOR (500mA)  
— PRINTED SIDE VIEW —



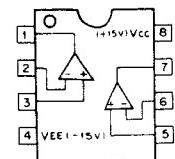
NJM2903D (JRC)  
VOLTAGE COMPARATOR  
— TOP VIEW —



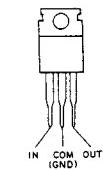
NJM4558  
NJM4558S (JRC)  
HIGH PERFORMANCE DUAL OPERATIONAL AMPLIFIER  
— SIDE VIEW —



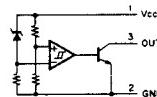
NJM4558D (JRC)  
uPC4558C (NEC)  
OPERATIONAL AMPLIFIER  
— TOP VIEW —



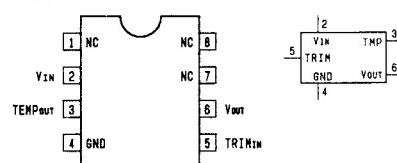
NJM7805FA  
NJM7809FA  
NJM7812FA  
uPC7812H  
POSITIVE VOLTAGE REGULATOR (1A)  
— SIDE VIEW —



PST529C (MITSUMI) Vs = 4.5V  
VOLTAGE DETECTOR, SYSTEM RESET  
(MITSUMI)

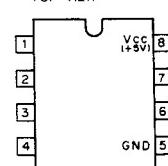


REF-02EZ (PMI)  
REFERENCE/THERMISTOR TRANSDUCER  
— TOP VIEW —



V<sub>IN</sub>: INPUT VOLTAGE (+7V to +40V)  
TEMPout: TEMPERATURE TRANSDUCER VOLTAGE OUTPUT (2.1mV/°C)  
TRIMIN: OUTPUT SIGNAL TRIMMING  
V<sub>OUT</sub>: OUTPUT VOLTAGE (+5V)

SN75176BP (TI)  
TTL-DIFFERENTIAL BUS TRANSCEIVER  
— TOP VIEW —



FUNCTION TABLE

— DRIVER —

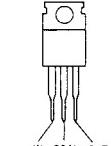
| INPUT | ENABLE | OUTPUT    |
|-------|--------|-----------|
| D     | DE     | A B       |
| 1     | 1      | 1 0       |
| 0     | 1      | 0 1       |
| X     | 0      | HI-Z HI-Z |

1: HIGH LEVEL  
0: LOW LEVEL  
X: DON'T CARE  
HI-Z: HIGH IMPEDANCE  
?: INDETERMINATE

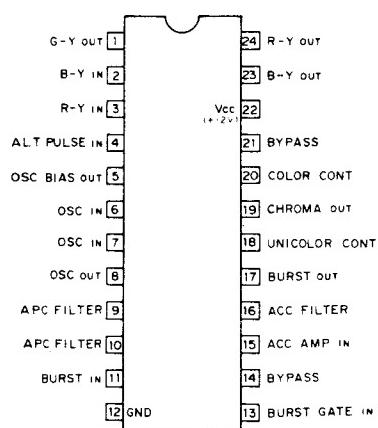
— RECEIVER —

| DIFFERENTIAL INPUTS | ENABLE | OUTPUT |
|---------------------|--------|--------|
| A-B                 | RE     | R      |
| Vid > 0.2V          | 0      | 1      |
| -0.2V < Vid < 0.2V  | 0      | ?      |
| Vid < -0.2V         | 0      | 0      |
| X                   | 1      | HI-Z   |

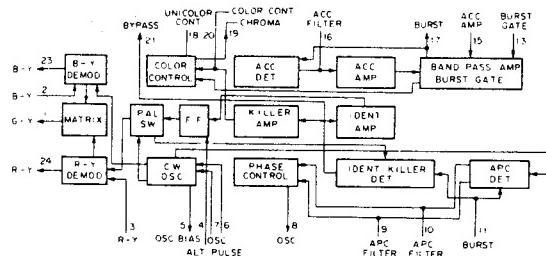
**TA7812S**  
**POSITIVE VOLTAGE REGULATOR (0.5A)**  
**- SIDE VIEW -**



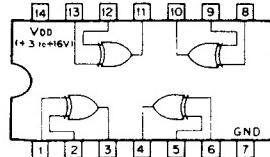
TA7193P (TOSHIBA)  
TV CHROMA PROCESS (PAL)  
— TOP VIEW —



OUT; OUTPUT  
IN; INPUT  
CONT; CONTROL



TC4030BP (TOSHIBA)  
TC4030BPHB (TOSHIBA)  
C-MOS EXCLUSIVE OR GATE  
— TOP VIEW —

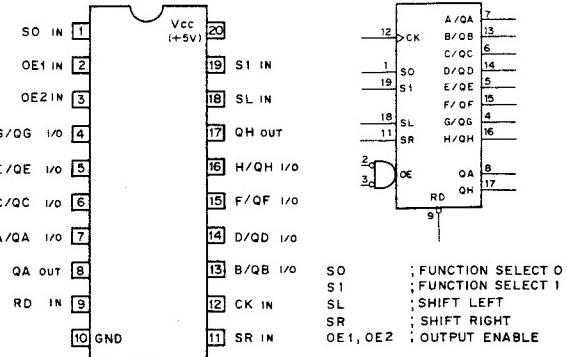


A  
B  
Y = A · B + A · B̄

| A | B | Y |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 0 | 0 |

0 = LOW LEVEL  
1 = HIGH LEVEL

**TC74HC299FA**  
**TTL 8-BIT UNIVERSAL SHIFT/STORAGE REGISTER**  
**— TOP VIEW —**



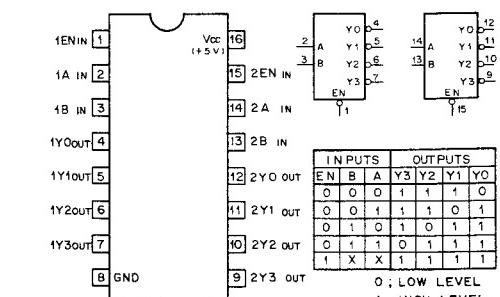
a---h=The level of the steady-state input of inputs A through H respectively

O;LOW LEVEL

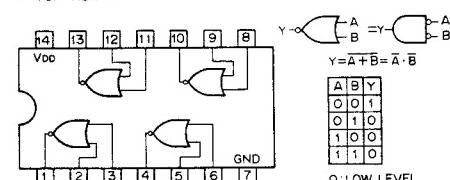
1 ;HIGH LEVEL

X ; DON'T CARE

**TC74HCT139AF**  
**TTL 2-TO-4-LINE DECODER/DEMULTIPLEXER**  
— TOP VIEW —



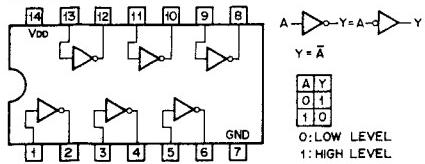
TC74HCT02AF (TOSHIBA) FLAT PACKAGE  
C-MOS QUAD 2-INPUT NOR GATES  
- TOP VIEW -



## NOTE

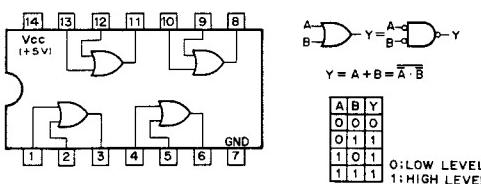
| TYPE        | V <sub>DD</sub> |
|-------------|-----------------|
| TC74AC02F   | +2 to +5.5V     |
| 74ACT02SJ   |                 |
| TC74ACT02F  | +4.5 to +5.5V   |
| OTHER TYPES | +2 to +5V       |

TC74HCT04AF (TOSHIBA) FLAT PACKAGE

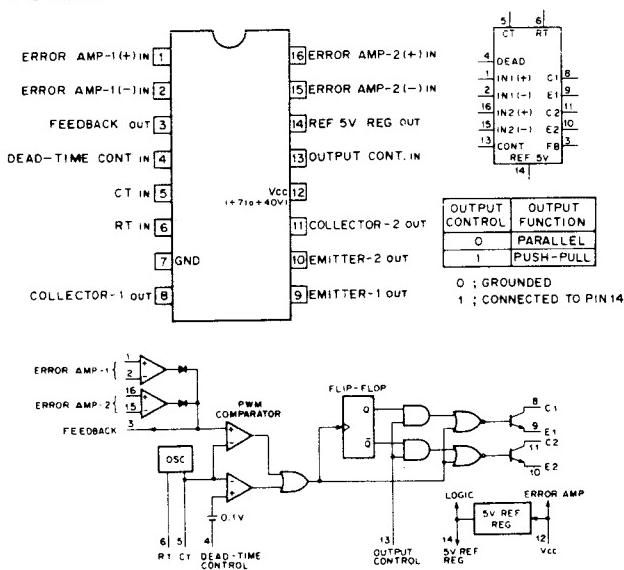


| NOTE :        |                 |
|---------------|-----------------|
| TYPE          | V <sub>DD</sub> |
| 74HCT04 TYPE  | +5V             |
| TC74AC04 TYPE | +2 to +5.5V     |
| 74ACT04 TYPE  | +4.5 to +5.5V   |
| OTHER TYPES   | +2 to +6V       |

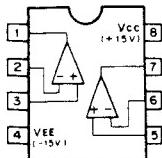
**TC74HCT32FA**  
**TTL 2-INPUT POSITIVE-OR GATE**  
TOP VIEW



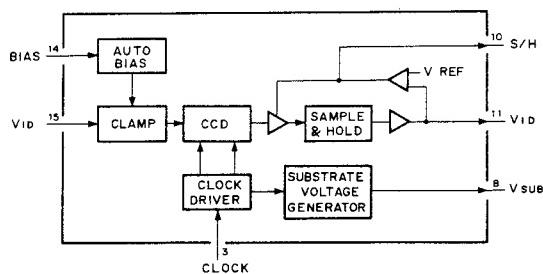
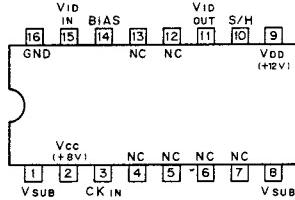
**TL494CN (T1)**  
**PWM POWER CONTROL**  
**- TOP VIEW -**



TL082ACP  
TL082M  
OPERATIONAL AMPLIFIER  
(J FET-INPUT)  
- TOP VIEW -



TL8608AP (TOSHIBA)  
N-CH CCD ANALOG PROCESSING UNIT  
- TOP VIEW -

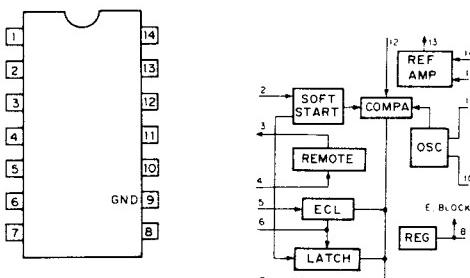


**TOP VIEW**

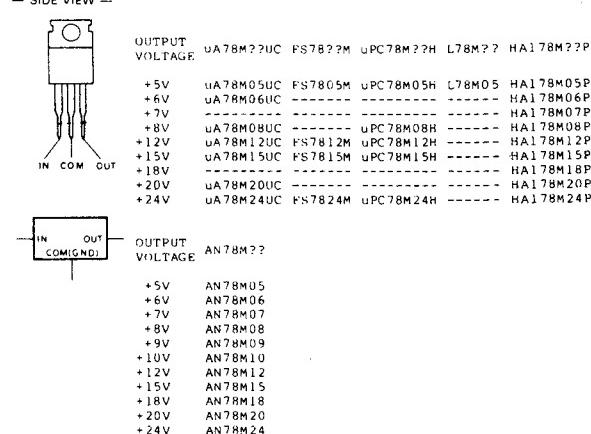


**TX-429**

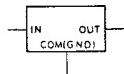
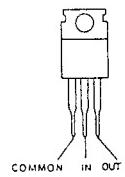
**$\mu$ PC1394C (NEC)  
CONTROLLER OF SWITCHING MODE POWER SUPPLY  
— TOP VIEW —**



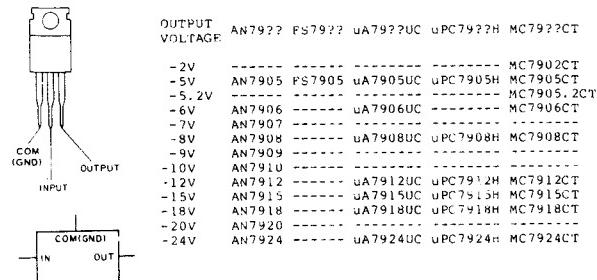
**μPC78M12H (NEC)**  
POSITIVE VOLTAGE REGULATOR (0.5A)  
— SIDE VIEW



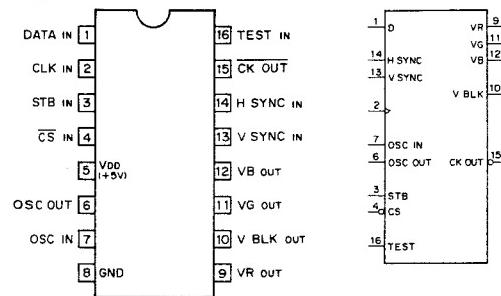
uPC79M12H  
NEGATIVE VOLTAGE REGULATOR (0.5A)  
— SIDE VIEW —



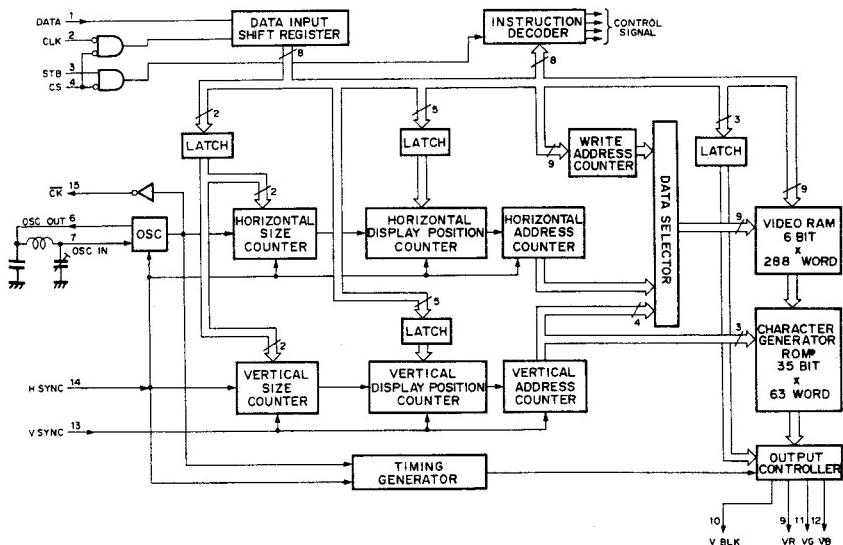
uPC7912H (NEC)  
NEGATIVE VOLTAGE REGULATOR (1A)  
— SIDE VIEW —



UPD6142G-101 (NEC) FLAT PACKAGE  
C-MOS 8-BIT SERIAL INPUT CHARACTER DISPLAY  
— TOP VIEW —

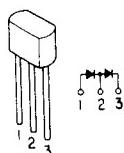


D; DATA INPUT  
CK OUT; EQUAL TO OUTPUT OF OSC OUT  
CLK; CLOCK INPUT  
CS; CHIP SELECT INPUT  
H SYNC; H SYNC INPUT  
OSC IN, OUT; EXTERNAL TERMINAL FOR OSC  
STB; STROBE INPUT  
TEST; TEST CLOCK INPUT  
VB; BLUE CHARACTER DATA OUTPUT  
V BLK; V BLANKING OUTPUT  
VG; GREEN CHARACTER DATA OUTPUT  
VR; RED CHARACTER DATA OUTPUT  
V SYNC; V SYNC INPUT

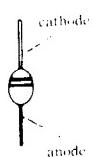


|          |          |         |           |          |            |
|----------|----------|---------|-----------|----------|------------|
| 2SA733   | 2SA1142  | 2SC2555 | 2SK523    | 1T25     | ESAC25-04C |
| 2SA844   | 2SA1406  |         |           |          |            |
| 2SA1091  | 2SA1407  |         |           |          |            |
| 2SC2551  | 2SC3600  |         |           |          |            |
| 2SC2878  |          |         |           |          |            |
| 2SC3068  |          |         |           |          |            |
|          |          |         |           |          |            |
|          |          |         |           |          |            |
|          |          |         |           |          |            |
|          |          |         |           |          |            |
| 2SA812   | 2SA1175  | 2SC2688 | 1S2835    | CR02AM-4 | ESAC25-04D |
| 2SA1162  | 2SC2785  | 2SC2752 | 1S2836    | CR02AM-8 | ESAC25-04N |
| 2SA1226  |          | 2SC3209 | 1S2837    |          |            |
| 2SC1623  |          | 2SC3298 | MA152WK   |          |            |
| 2SC2757  |          | 2SD669A |           |          |            |
| 2SC3624A |          |         |           |          |            |
| DTA144EK |          |         |           |          |            |
| DTC144EK |          |         |           |          |            |
|          |          |         |           |          |            |
|          |          |         |           |          |            |
|          |          | 2SD1556 | 1SS119    | CR3CM-8  | ESAC31-02D |
|          |          |         | 1S83      |          |            |
|          |          |         | WG713A    |          |            |
|          |          |         |           |          |            |
|          |          |         |           |          |            |
|          | 2SA1488  | 2SC3851 | 1SS148    | LT9010H  | MC911      |
|          |          |         | 10E2      |          |            |
|          |          |         | GP08D     |          |            |
|          |          |         | RD10EB    |          |            |
|          |          |         | RD12EB    |          |            |
|          |          |         | RD15EB    |          |            |
|          |          |         | RD15ES    |          |            |
|          |          |         | RD3.0EB   |          |            |
|          |          |         | RD3.9EB   |          |            |
|          |          |         | RD3.9ES   |          |            |
|          |          |         | RD4.3EB   |          |            |
|          |          |         | RD5.6EB   |          |            |
|          |          |         | RD5.6ES   |          |            |
|          |          |         | RD6.2EB   |          |            |
|          |          |         | RD6.8EB   |          |            |
|          |          |         | RD6.8ES   |          |            |
|          |          |         | RD7.5ES   |          |            |
|          |          |         | RD8.2ES   |          |            |
|          |          |         | RD9.1EB   |          |            |
|          |          |         | RD9.1ES   |          |            |
|          |          |         | RU-3AM    |          |            |
|          |          |         |           |          |            |
|          |          |         |           |          |            |
|          | 2SA1048  | 2SB734  | ERB44-06  | MC921    |            |
|          | 2SA1115  | 2SD774  | ERB81-004 |          |            |
|          | 2SC2688  |         | ERC04-24S |          |            |
|          | 2SC403SP |         | ERD28-04S |          |            |
|          | DTA124ES |         | ERD28-08S |          |            |
|          | DTA144ES |         | RH-1      |          |            |
|          | DTC124ES |         | RH-1A     |          |            |
|          | DTC143TS |         | RU-1A     |          |            |
|          | DTC144ES |         | RU-1C     |          |            |
|          | XDA124ES |         | SIB01-02  |          |            |
|          | XDA144ES |         |           |          |            |
|          | XDC124ES |         |           |          |            |
|          | XDC144ES |         |           |          |            |
|          |          |         |           |          |            |
|          |          |         |           |          |            |
|          | 2SB858   | 2SK381  |           |          |            |
|          | 2SB861   | 2SK514  |           |          |            |
|          | 2SC3675  |         |           |          |            |
|          | 2SD1134  |         |           |          |            |
|          |          |         |           |          |            |
|          |          |         |           |          |            |

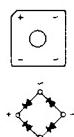
**MC932**



**V11N**



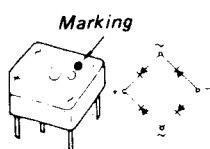
**RB406N**



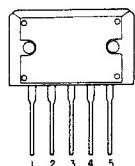
**RD5.6M  
RD7.5M**



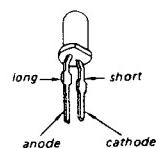
**S3WB60Z**



**STR8124**



**GL3HY3  
TLLG124A  
TLR124  
TLY124**





## SECTION 6

### EXPLODED VIEWS

**NOTE:**

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

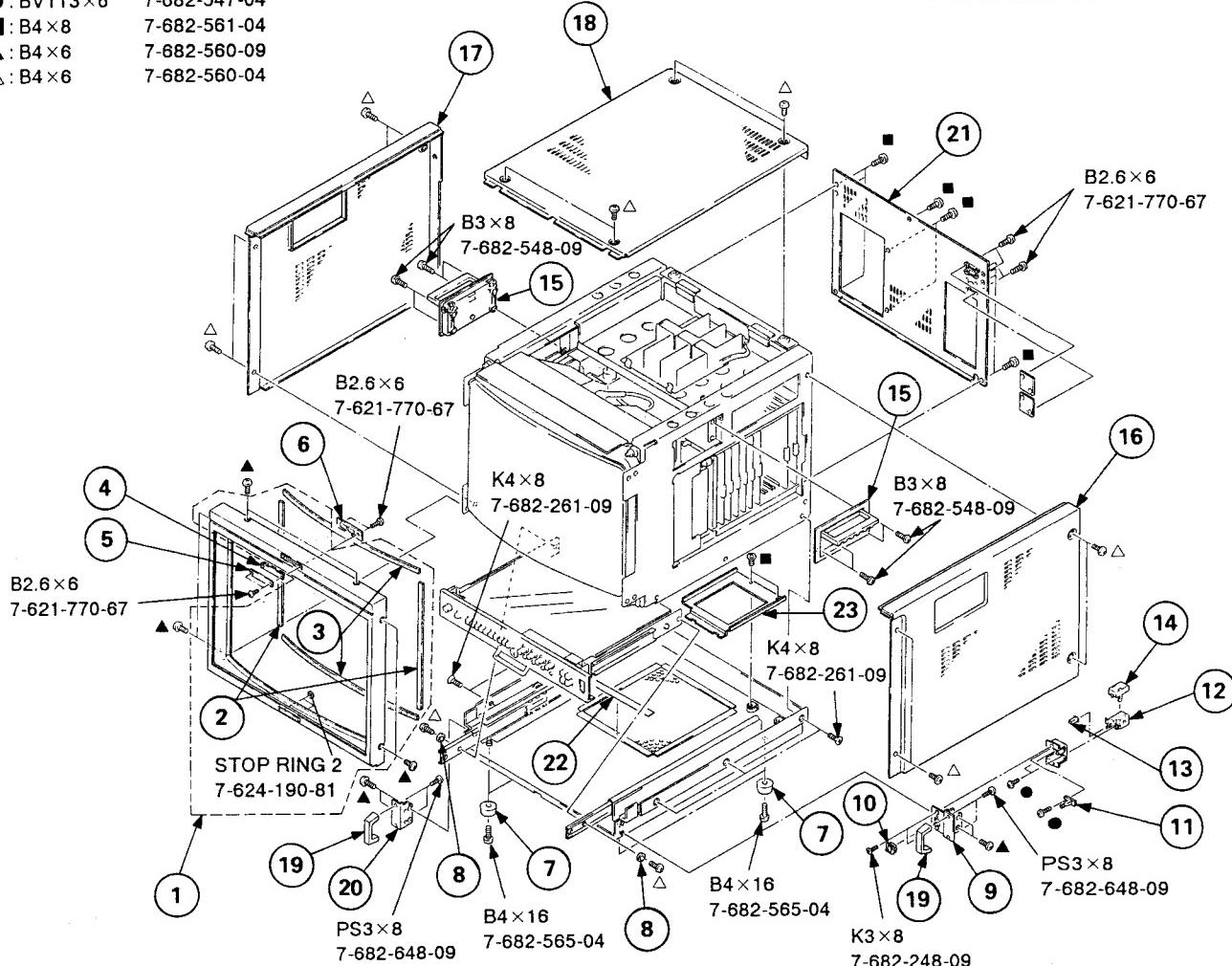
- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark  $\triangle$  are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une trame et une marque  $\triangle$  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

#### 6-1. BEZEL AND COVERS

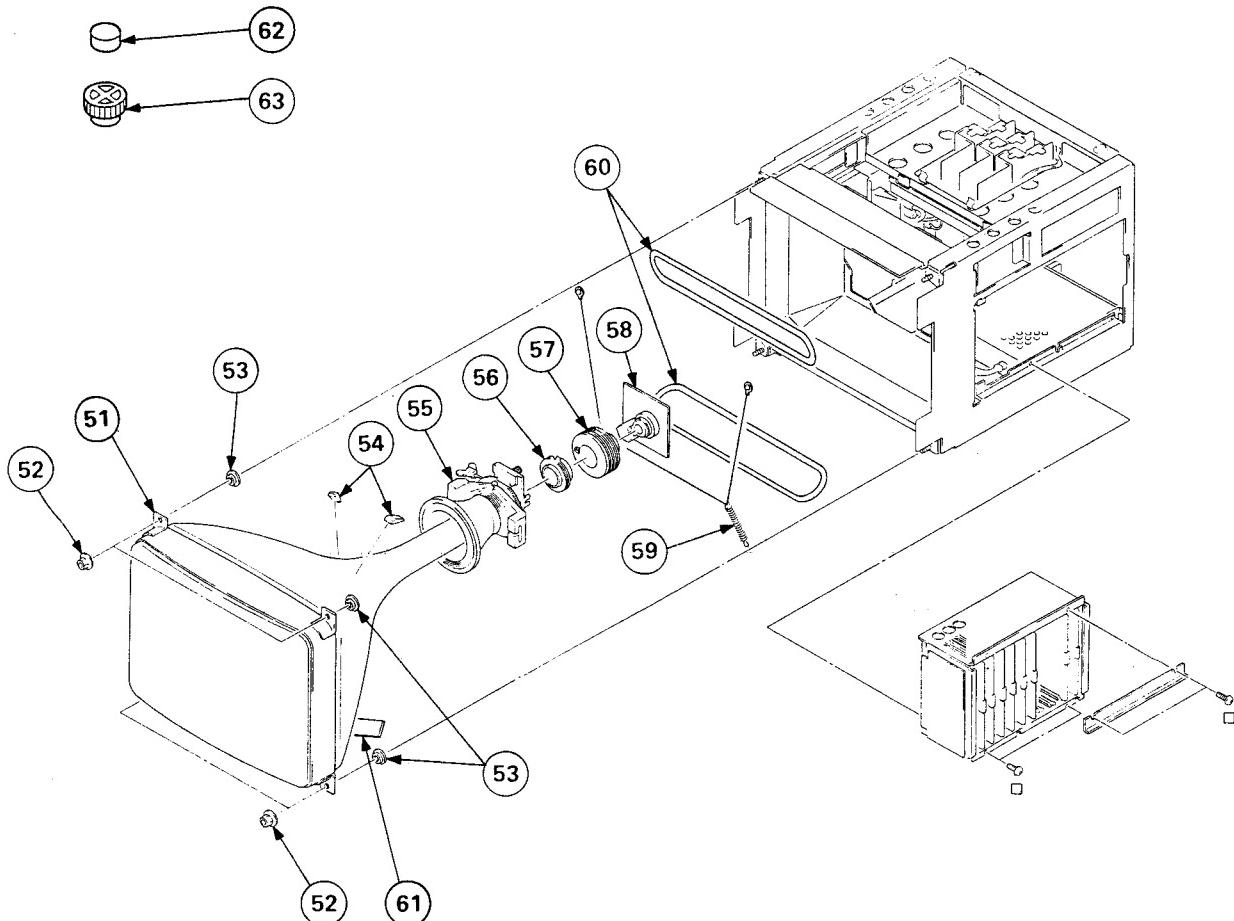
|             |              |
|-------------|--------------|
| ● : BVTT3×6 | 7-682-547-04 |
| ■ : B4×8    | 7-682-561-04 |
| ▲ : B4×6    | 7-682-560-09 |
| △ : B4×6    | 7-682-560-04 |



| REF. NO. | PART NO.      | DESCRIPTION              | REMARK | REF. NO. | PART NO.       | DESCRIPTION                     | REMARK |
|----------|---------------|--------------------------|--------|----------|----------------|---------------------------------|--------|
| 1        | X-4379-412-1  | BEZEL ASSY               |        | 2, 3     |                |                                 |        |
| 2        | 4-308-878-XX  | CUSHION (B), BEZEL       |        | 12       | △.1-570-052-12 | SWITCH, PUSH (AC POWER) (1 KEY) |        |
| 3        | 4-308-878-XX  | CUSHION (A), CRT         |        | 13       | 4-374-839-11   | BUTTON (A)                      |        |
| 4        | *4-386-839-01 | PLATE, TALLY             |        | 14       | 4-373-038-01   | COVER, SWITCH, POWER            |        |
| 5        | *4-386-840-01 | PLATE (B), TALLY         |        | 15       | X-3042-018-0   | HANDLE ASSY                     |        |
| 6        | *1-623-002-11 | XB BOARD                 |        | 16       | *4-386-832-01  | COVER (RIGHT)                   |        |
| 7        | X-483-620-29  | FOOT                     |        | 17       | *4-386-833-01  | COVER (LEFT)                    |        |
| 8        | *4-379-499-01 | SPACER                   |        | 18       | *4-386-831-01  | COVER (UPPER)                   |        |
| 9        | *X-4379-408-1 | PANEL ASSY, POWER SWITCH |        | 19       | *4-353-706-00  | HANDLE                          |        |
| 10       | 4-379-423-01  | ESCUTCHEON (A)           |        | 20       | *4-386-808-01  | BRACKET (LEFT), HANDLE          |        |
| 11       | *1-617-893-11 | Y BOARD                  |        | 21       | *4-386-811-03  | COVER, REAR                     |        |
|          |               |                          |        | 22       | 4-372-556-01   | SHEET, BLOTTING                 |        |
|          |               |                          |        | 23       | 4-386-814-03   | BRACKET, POWER                  |        |

## 6-2. PICTURE TUBE

□ : B3×10      7-682-549-04



### 6. EXPLODED VIEWS

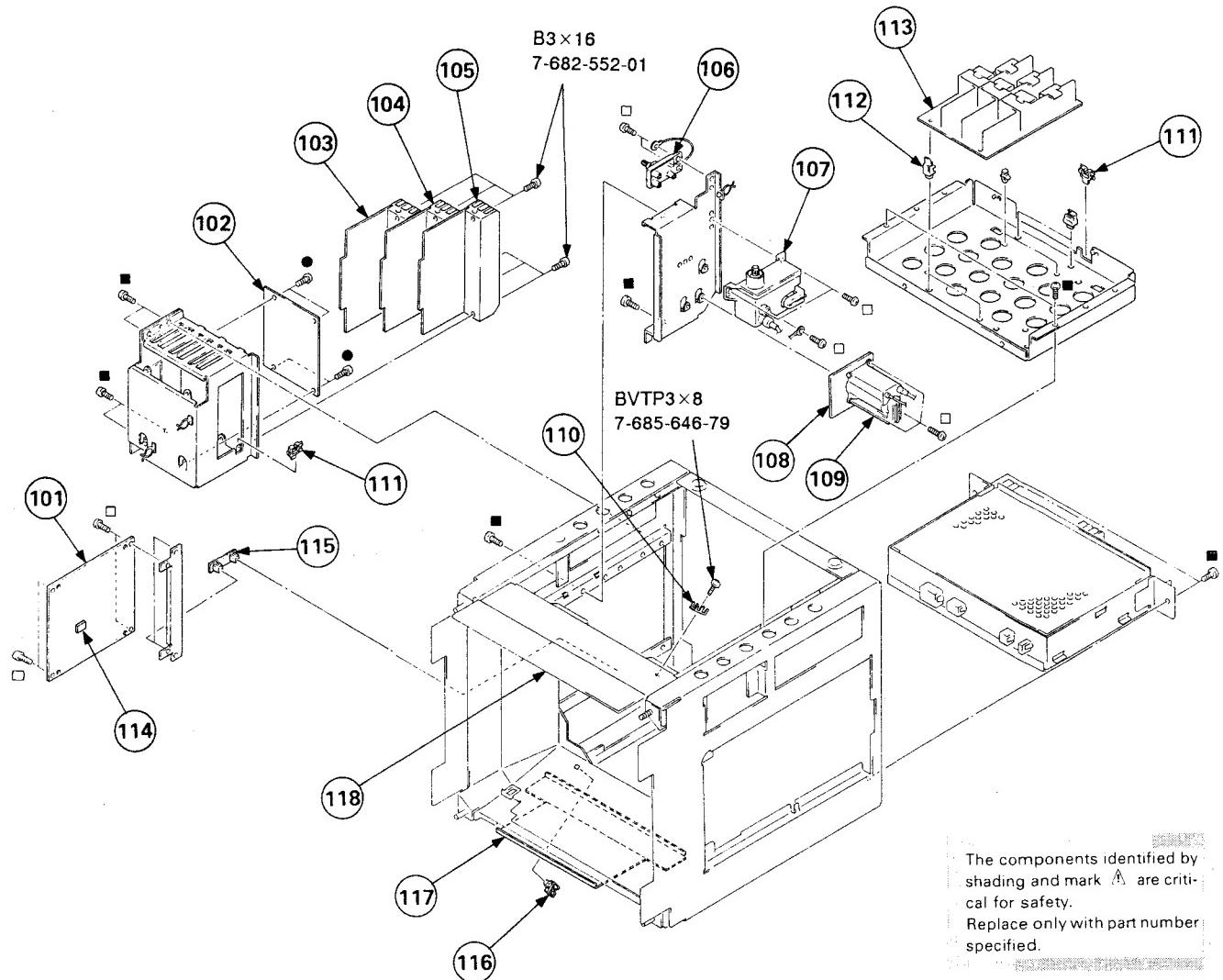
The components identified by shading and mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une trame et une marque  $\Delta$  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

| REF. NO.                  | PART NO.                                | DESCRIPTION | REMARK | REF. NO.                  | PART NO.                            | DESCRIPTION | REMARK |
|---------------------------|---|-------------|--------|---------------------------|-------------------------------------|-------------|--------|
| 51 $\Delta$ .8-733-053-05 | CRT SD-112 (M49JJP20X) (BVP-1911 ONLY)  |             |        | 57 $\Delta$ .1-452-117-31 | CRT NECK ASSY                       |             |        |
| 51 $\Delta$ .8-733-054-05 | CRT SD-112 (M49JJP21X) (BVP-2011P ONLY) |             |        | 58 *1-617-889-11          | C BOARD                             |             |        |
| 52 4-306-034-00           | FLANGE NUT, (B) 5MM                     |             |        | 59 4-303-774-XX           | SPRING                              |             |        |
| 53 4-348-567-00           | WASHER, CRT POSITION                    |             |        | 60 $\Delta$ .1-426-328-11 | COIL, DEGAUSSING                    |             |        |
| 54 3-703-961-01           | SPACER, DY                              |             |        | 61 3-831-441-11           | CLOTH, BLOTTING                     |             |        |
| 55 $\Delta$ .1-451-287-21 | DEFLECTION YUKE (Y14FAA)                |             |        | 62 1-452-032-00           | MAGNET, DISK; 10MM $\phi$           |             |        |
| 56 $\Delta$ .1-452-261-22 | CRT NECK ASSY (362)                     |             |        | 63 1-452-094-00           | MAGNET, ROTATABLE DISK; 15MM $\phi$ |             |        |

### **6-3. CHASSIS**

- : BVTT3×6 7-682-547-04  
■ : B4×8 7-682-561-04  
□ : B3×10 7-682-549-04



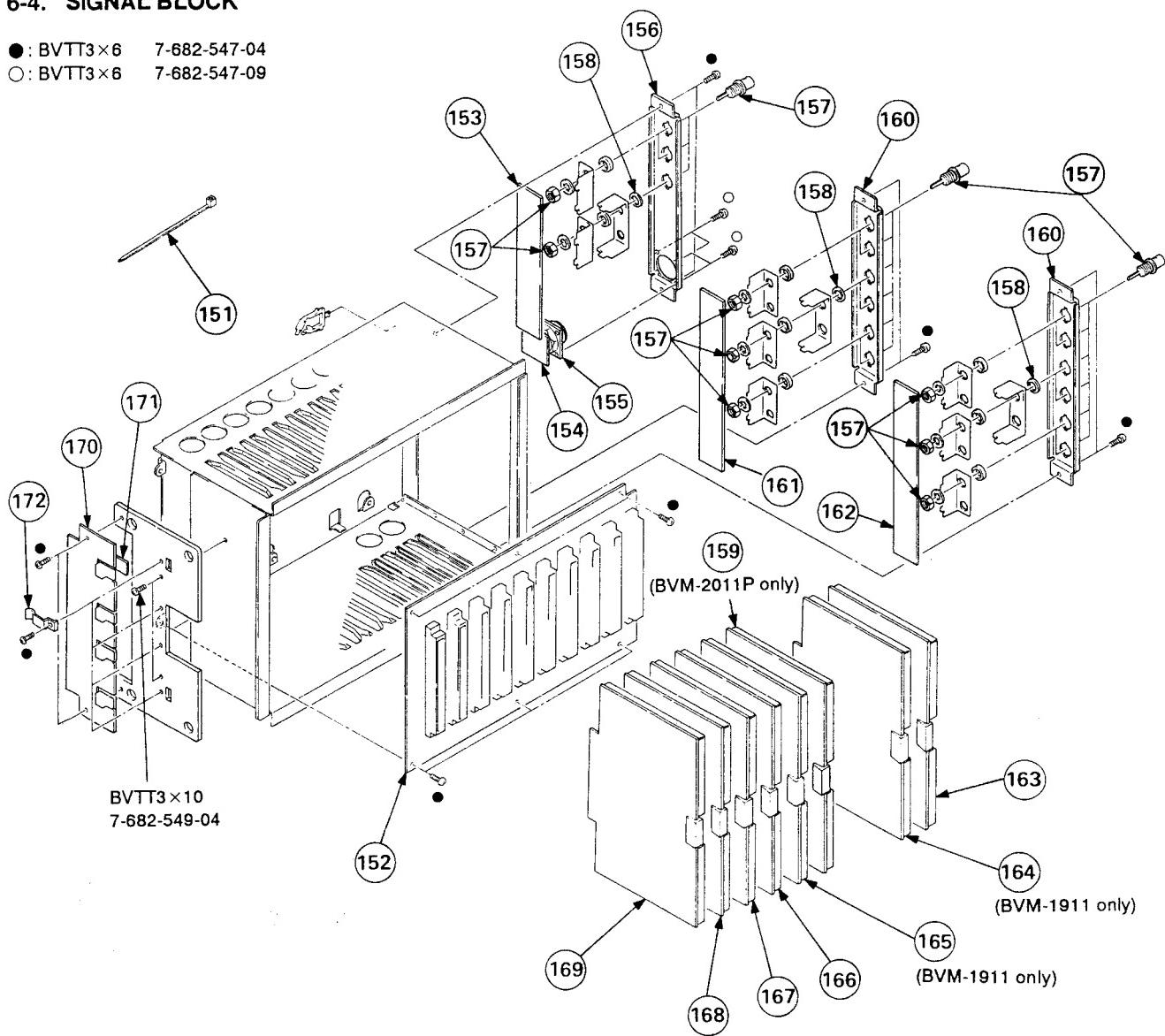
The components identified by shading and mark A are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une trame et une marque A sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

| REF.NO. | PART NO.       | DESCRIPTION                    | REMARK | REF.NO. | PART NO.      | DESCRIPTION                | REMARK |
|---------|----------------|--------------------------------|--------|---------|---------------|----------------------------|--------|
| 101     | *A-1345-981-A  | DB BOARD, COMPLETE             |        | 110     | *4-309-624-00 | TERMINAL, EARTH            |        |
| 102     | *1-647-911-11  | TA BOARD                       |        | 111     | *3-646-071-00 | HOLDER, WIRE               |        |
| 103     | *A-1346-029-A  | EA BOARD, COMPLETE             |        | 112     | *3-703-141-00 | HOLDER, PCB                |        |
| 104     | *A-1345-731-A  | EB BOARD, COMPLETE             |        | 113     | *A-1135-464-A | BK BOARD, COMPLETE         |        |
| 105     | *A-1394-128-A  | PA BOARD, COMPLETE             |        | 114     | 9-911-841-XX  | CUSHION                    |        |
| 106     | A.1-237-165-12 | RESISTOR ASSY, HIGH-VOLTAGE    |        | 115     | *4-313-732-00 | CLIP, HINGE, CIRCUIT BOARD |        |
| 107     | A.1-453-103-32 | HIGH-VOLTAGE BLOCK (HB-203(B)) |        | 116     | *4-314-320-00 | HOLDER, WIRE               |        |
| 108     | *1-617-891-21  | PB BOARD                       |        | 117     | *4-391-234-03 | STAY, UNDER                |        |
| 109     | A.1-439-382-21 | TRANSFORMER ASSY, FLYBACK      |        | 118     | *4-386-819-02 | STAY, FRONT                |        |

## **6-4. SIGNAL BLOCK**

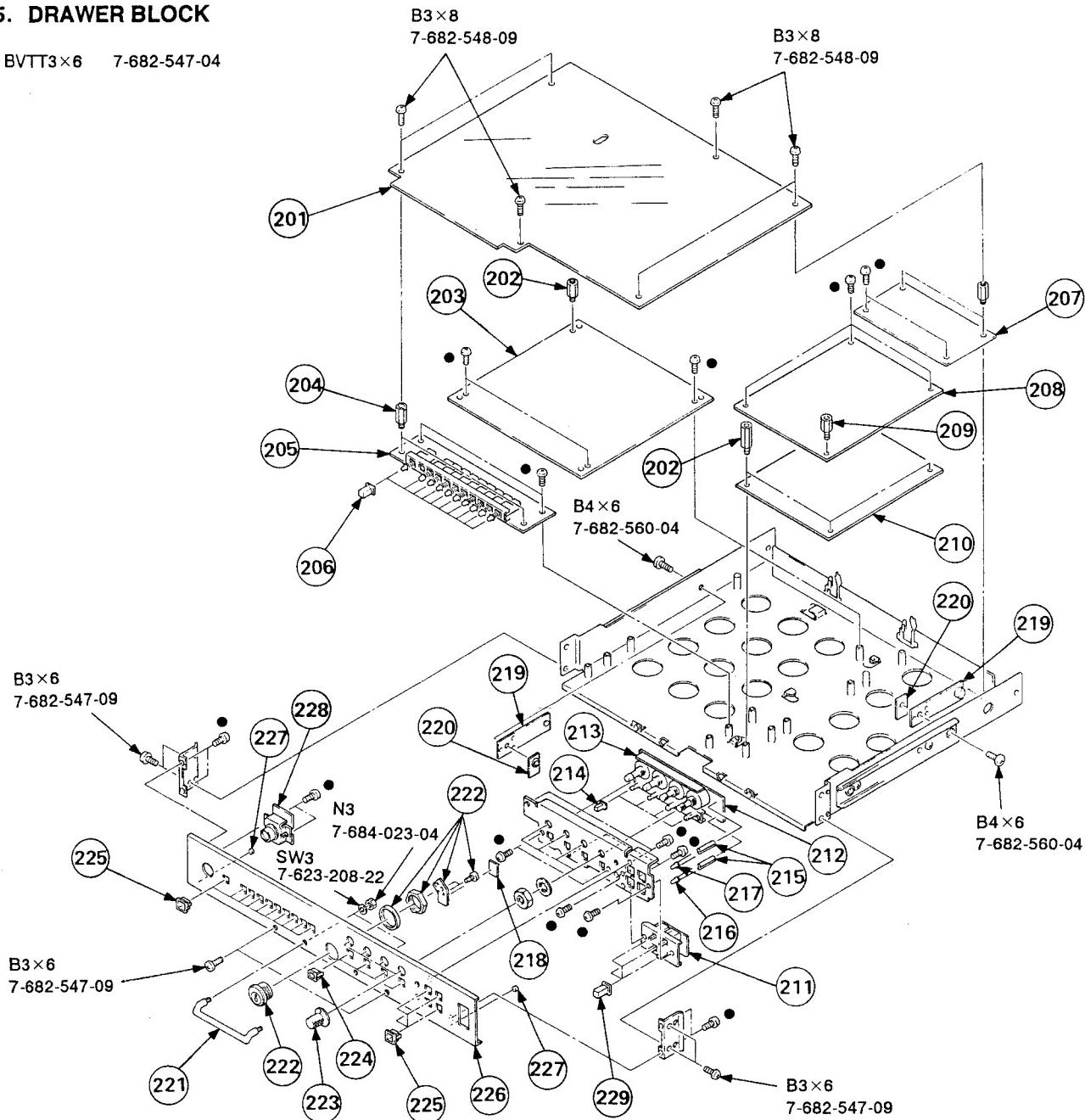
●: BVTT3×6 7-682-547-04  
○: BVTT3×6 7-682-547-09



| REF. NO. | PART NO.      | DESCRIPTION                         | REMARK | REF. NO. | PART NO.      | DESCRIPTION                        | REMARK |
|----------|---------------|-------------------------------------|--------|----------|---------------|------------------------------------|--------|
| 151      | *3 337-402-01 | BAND, BINDING                       |        | 161      | *1-618-786-11 | QB BOARD                           |        |
| 152      | *A-1390-344-A | TB BOARD, COMPLETE                  |        | 162      | *1-617-895-11 | QA BOARD                           |        |
| 153      | *1-627-678-11 | W BOARD                             |        | 163      | *A-1135-355-A | BA BOARD, COMPLETE                 |        |
| 154      | *1-627-677-11 | V BOARD                             |        | 164      | *A-1135-606-B | BT BOARD, COMPLETE (BVM 1911 ONLY) |        |
| 155      | 1-563-265-11  | CONNECTOR, MULTIPLE TOP             |        | 165      | *A-1135-357-A | BC BOARD, COMPLETE (BVM-1911 ONLY) |        |
| 156      | *4-391-220-01 | PANEL (C), CONNECTOR                |        | 166      | *A-1135-358-A | BG BOARD, COMPLETE                 |        |
| 157      | 1-565-791-11  | CONNECTOR, BNC IP                   |        | 167      | *A-1135-359-A | BH BOARD, COMPLETE                 |        |
| 158      | *4-379-404-01 | INSULATOR, BNC                      |        | 168      | *A-1135-360-A | BI BOARD, COMPLETE                 |        |
| 159      | *A-1135-391-A | BD BOARD, COMPLETE (BVM 2011P ONLY) |        | 169      | *A-1135-361-A | BJ BOARD, COMPLETE                 |        |
| 160      | *4-379-439-01 | PANEL (A), CONNECTOR                |        | 170      | *1-617-885-12 | GC BOARD                           |        |
|          |               |                                     |        | 171      | 4-370-970-01  | SPACER, TR                         |        |
|          |               |                                     |        | 172      | *4-363-404-00 | HOLDER, IC                         |        |

## 6-5. DRAWER BLOCK

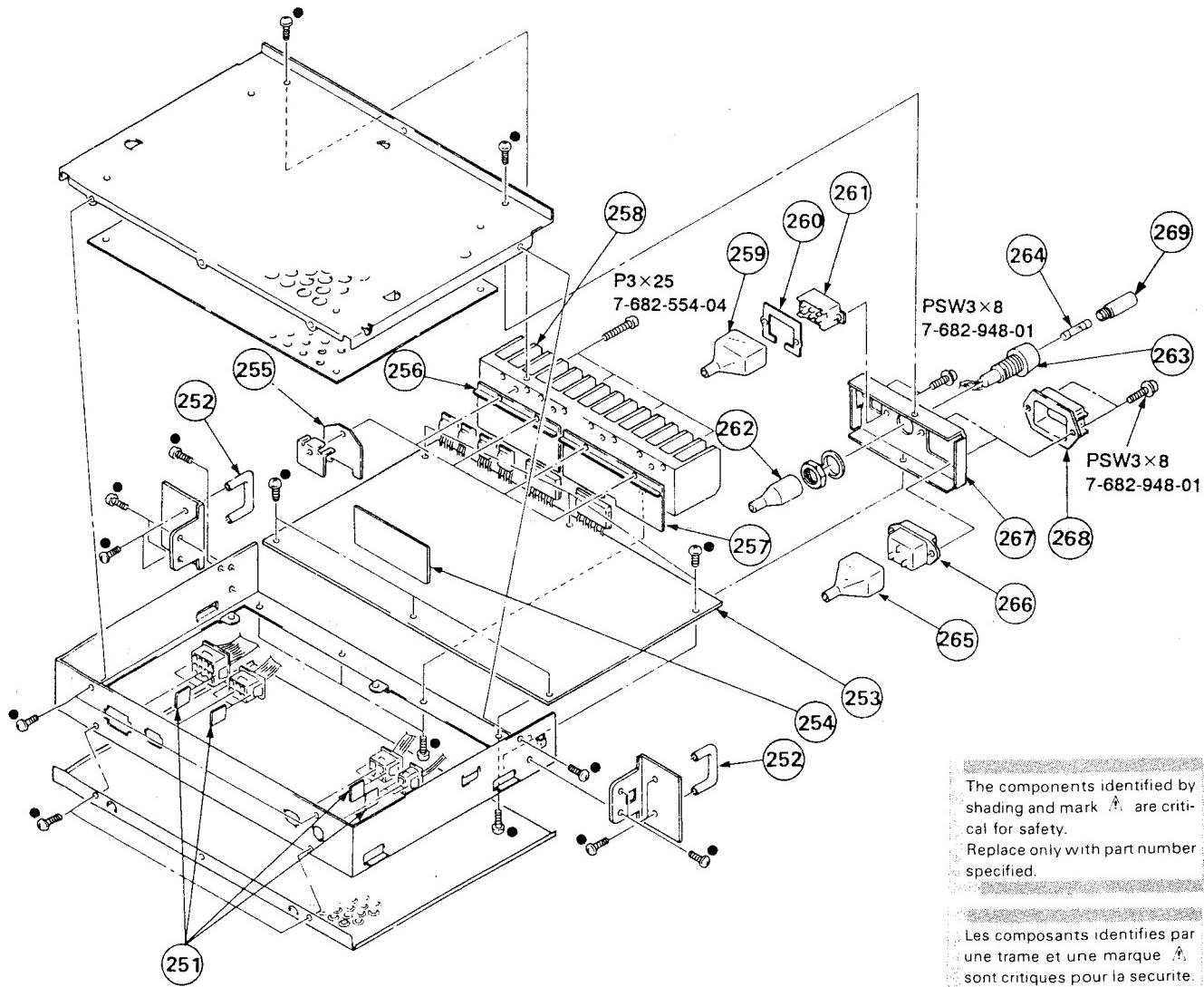
● : BVTT3×6 7-682-547-04



| REF. NO. | PART NO.      | DESCRIPTION                  | REMARK | REF. NO. | PART NO.      | DESCRIPTION                     | REMARK |
|----------|---------------|------------------------------|--------|----------|---------------|---------------------------------|--------|
| 201      | *4-039-981-01 | COVER, PC BOARD              |        | 216      | 8-719-938-68  | DIODE TLY124                    |        |
| 202      | *2-264-136-00 | SUPPORT, SWITCH, PUSH BUTTON |        | 217      | 8-719-812-41  | DIODE TLR124                    |        |
| 203      | *A-1345-982-A | DA BOARD, COMPLETE           |        | 218      | 4-337-209-11  | PROTECTOR, SCRATCH              |        |
| 204      | 3-897-313-01  | BOSS (17.2), RELAY           |        | 219      | *X-4379-407-1 | STOPPER ASSY                    |        |
| 205      | *I-617-890-11 | HA BOARD                     |        | 220      | *4-386-844-01 | NUT, PLATE                      |        |
| 206      | 4-374-839-01  | BUTTON (A)                   |        | 221      | 4-386-802-01  | HANDLE, DRAWER                  |        |
| 207      | *A-1341-408-A | DC BOARD, COMPLETE           |        | 222      | 4-378-917-01  | LOCK, CYLINDER                  |        |
| 208      | A-1371-895-A  | HY BOARD, COMPLETE           |        | 223      | X-3673-635-0  | KNOB (1) ASSY, CONTROL          |        |
| 209      | *3-711-018-01 | STAND OFF-BRAKE BAND GUIDE   |        | 224      | 4-379-424-01  | ESCUCHHEON (B)                  |        |
| 210      | A-1371-896-A  | HZ BOARD, COMPLETE           |        | 225      | 4-379-423-01  | ESCUCHHEON (A)                  |        |
| 211      | *I-647-258-11 | HX BOARD                     |        | 226      | 4-386-822-11  | PANEL, CONTROL                  |        |
| 212      | *I-647-257-11 | HW BOARD                     |        | 227      | 4-911-672-01  | FELT, COVER                     |        |
| 213      | *I-627-682-11 | HH BOARD                     |        | 228      | 1-941-422-15  | CONNECTOR ASSY (ROUND TYPE) 12P |        |
| 214      | 4-379-422-01  | BUTTON (B)                   |        | 229      | 4-039-982-01  | BUTTON (U)                      |        |
| 215      | *4-026-910-00 | HOLDER, LED                  |        |          |               |                                 |        |

## 6-6. POWER BLOCK

● : BVT3×6 7-682-547-04



| REF. NO. | PART NO.      | DESCRIPTION                         | REMARK | REF. NO. | PART NO.               | DESCRIPTION                | REMARK |
|----------|---------------|-------------------------------------|--------|----------|------------------------|----------------------------|--------|
| 251      | 3-675-469-00  | SPACER, SOLENOID                    |        | 260      | *4-379-409-01          | NUT, PLATE                 |        |
| 252      | 4-379-421-01  | HANDLE, DRAWER                      |        | 261      | <b>A</b> .1-570-173-22 | SWITCH, VOLTAGE CHANGE     |        |
| 253      | *A-1316-089-A | GA BOARD, COMPLETE (BVM-1911 ONLY)  | 254    | 262      | *4-393-031-01          | COVER, FUSE HOLDER         |        |
| 253      | *A-1316-090-A | GA BOARD, COMPLETE (BVM-2011P ONLY) | 254    | 263      | 1-533-167-21           | HOLDER, FUSE               |        |
| 254      | *1-627-679-11 | GB BOARD                            |        | 264      | <b>A</b> .1-532-746-11 | FUSE, GLASS TUBE (4A/125V) |        |
| 255      | *4-379-408-01 | INSULATOR (G3)                      |        | 265      | *4-601-466-11          | COVER, 3P INLET            |        |
| 256      | 4-379-410-01  | SPACER (G2), POLISHING              |        | 266      | <b>A</b> .1-580-375-11 | INLET 3P                   |        |
| 257      | 4-379-403-01  | SPACER (G1), POLISHING              |        | 267      | *4-379-430-01          | PANEL, POWER               |        |
| 258      | *4-374-706-00 | HEAT SINK (TR)                      |        | 268      | 2-990-241-02           | HOLDER (A), PLUG           |        |
| 259      | *4-371-879-02 | COVER, AC SELECT                    |        | 269      | 1-533-168-21           | HOLDER, FUSE               |        |

## SECTION 7

### ELECTRICAL PARTS LIST

**XB** **BA**

**NOTE:**

The components identified by shading and mark **A** are critical for safety.

Replace only with part number specified.

Les composants identifiés par une trame et une marque **A** sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

**RESISTORS**

- All resistors are in ohms
- F : nonflammable

When indicating parts by reference number, please include the board name.

- | CAPACITORS   | COILS                  |
|--|------------------------|
| MF : $\mu$ F, PF : $\mu\mu$ F  | MMH : mH, UH : $\mu$ H |
| <ul style="list-style-type: none"> <li>The components identified by <b>A</b> in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.</li> </ul> |                        |

| REF. NO. | PART NO.      | DESCRIPTION                 | REMARK        | REF. NO. | PART NO.     | DESCRIPTION | REMARK         |
|----------|---------------|-----------------------------|---------------|----------|--------------|-------------|----------------|
|          | *1-623-002-11 | XB BOARD<br>*****           |               | C16      | 1-126-101-11 | ELECT       | 100MF 20% 16V  |
|          |               | <DIODE>                     |               | C17      | 1-126-101-11 | ELECT       | 100MF 20% 16V  |
| D1       | 8-719-901-49  | DIODE LT-9010H              |               | C18      | 1-124-915-11 | ELECT       | 10MF 20% 16V   |
| D2       | 8-719-901-49  | DIODE LT-9010H              |               | C19      | 1-124-915-11 | ELECT       | 10MF 20% 16V   |
|          |               | *****                       |               | C20      | 1-101-004-00 | CERAMIC     | 0.01MF 50V     |
|          | *A-1135-355-A | BA BOARD, COMPLETE<br>***** |               | C21      | 1-101-006-00 | CERAMIC     | 0.047MF 50V    |
|          |               |                             |               | C31      | 1-101-004-00 | CERAMIC     | 0.01MF 50V     |
|          |               |                             |               | C32      | 1-124-915-11 | ELECT       | 10MF 20% 16V   |
|          |               |                             |               | C33      | 1-124-915-11 | ELECT       | 10MF 20% 16V   |
|          |               |                             |               | C34      | 1-124-915-11 | ELECT       | 10MF 20% 16V   |
|          | *A-1135-355-A | BA BOARD, COMPLETE<br>***** |               | C35      | 1-124-915-11 | ELECT       | 10MF 20% 16V   |
|          |               |                             |               | C36      | 1-124-915-11 | ELECT       | 10MF 20% 16V   |
|          |               |                             |               | C37      | 1-124-915-11 | ELECT       | 10MF 20% 16V   |
|          |               |                             |               | C38      | 1-124-915-11 | ELECT       | 10MF 20% 16V   |
|          |               |                             |               | C39      | 1-101-004-00 | CERAMIC     | 0.01MF 50V     |
|          |               | <CONNECTOR>                 |               | C51      | 1-126-103-11 | ELECT       | 470MF 20% 16V  |
| BA1      | *1-566-054-11 | PIN, CONNECTOR 2P           |               | C52      | 1-126-101-11 | ELECT       | 100MF 20% 16V  |
| BA2      | *1-566-054-11 | PIN, CONNECTOR 2P           |               | C53      | 1-126-101-11 | ELECT       | 100MF 20% 16V  |
| BA3      | *1-566-054-11 | PIN, CONNECTOR 2P           |               | C54      | 1-126-101-11 | ELECT       | 100MF 20% 16V  |
| BA4      | *1-566-054-11 | PIN, CONNECTOR 2P           |               | C55      | 1-126-101-11 | ELECT       | 100MF 20% 16V  |
| BA5      | *1-566-054-11 | PIN, CONNECTOR 2P           |               | C56      | 1-126-101-11 | ELECT       | 100MF 20% 16V  |
| BA6      | *1-566-054-11 | PIN, CONNECTOR 2P           |               | C57      | 1-126-101-11 | ELECT       | 100MF 20% 16V  |
|          |               | <COMPOSITION CIRCUIT BLOCK> |               | C71      | 1-101-004-00 | CERAMIC     | 0.01MF 50V     |
| C1       | 1-233-030-11  | COMPOSITION CIRCUIT BLOCK   |               | C72      | 1-101-004-00 | CERAMIC     | 0.01MF 50V     |
| C2       | 1-233-030-11  | COMPOSITION CIRCUIT BLOCK   |               | C73      | 1-101-004-00 | CERAMIC     | 0.01MF 50V     |
| C3       | 1-233-030-11  | COMPOSITION CIRCUIT BLOCK   |               | C74      | 1-101-004-00 | CERAMIC     | 0.01MF 50V     |
| C4       | 1-233-030-11  | COMPOSITION CIRCUIT BLOCK   |               | C75      | 1-101-004-00 | CERAMIC     | 0.01MF 50V     |
| C5       | 1-233-030-11  | COMPOSITION CIRCUIT BLOCK   |               | C76      | 1-101-004-00 | CERAMIC     | 0.01MF 50V     |
|          |               |                             |               | C77      | 1-101-004-00 | CERAMIC     | 0.01MF 50V     |
| C6       | 1-233-030-11  | COMPOSITION CIRCUIT BLOCK   |               | C101     | 1-102-038-00 | CERAMIC     | 0.001MF 500V   |
| C7       | 1-233-030-11  | COMPOSITION CIRCUIT BLOCK   |               | C102     | 1-124-915-11 | ELECT       | 10MF 20% 16V   |
|          |               | <CAPACITOR>                 |               | C103     | 1-102-951-00 | CERAMIC     | 15PF 5% 50V    |
| C1       | 1-124-910-11  | ELECT                       | 47MF 20% 16V  | C104     | 1-123-379-00 | ELECT       | 0.47MF 20% 50V |
| C2       | 1-124-910-11  | ELECT                       | 47MF 20% 16V  | C201     | 1-102-038-00 | CERAMIC     | 0.001MF 500V   |
| C3       | 1-124-910-11  | ELECT                       | 47MF 20% 16V  | C202     | 1-124-915-11 | ELECT       | 10MF 20% 16V   |
| C4       | 1-124-915-11  | ELECT                       | 10MF 20% 16V  | C203     | 1-102-951-00 | CERAMIC     | 15PF 5% 50V    |
| C5       | 1-124-910-11  | ELECT                       | 47MF 20% 16V  | C204     | 1-123-379-00 | ELECT       | 0.47MF 20% 50V |
|          |               |                             |               | C301     | 1-102-038-00 | CERAMIC     | 0.001MF 500V   |
| C6       | 1-124-910-11  | ELECT                       | 47MF 20% 16V  | C302     | 1-124-915-11 | ELECT       | 10MF 20% 16V   |
| C7       | 1-124-910-11  | ELECT                       | 47MF 20% 16V  | C303     | 1-102-965-00 | CERAMIC     | 39PF 5% 50V    |
| C8       | 1-124-910-11  | ELECT                       | 47MF 20% 16V  | C304     | 1-123-379-00 | ELECT       | 0.47MF 20% 50V |
| C9       | 1-101-004-00  | CERAMIC                     | 0.01MF 50V    | C305     | 1-102-947-00 | CERAMIC     | 10PF 0.5PF 50V |
| C10      | 1-101-004-00  | CERAMIC                     | 0.01MF 50V    | C306     | 1-102-942-00 | CERAMIC     | 5PF 1PF 50V    |
|          |               |                             |               | C401     | 1-102-038-00 | CERAMIC     | 0.001MF 500V   |
| C11      | 1-126-103-11  | ELECT                       | 470MF 20% 16V | C402     | 1-124-915-11 | ELECT       | 10MF 20% 16V   |
| C12      | 1-126-101-11  | ELECT                       | 100MF 20% 16V | C403     | 1-102-951-00 | CERAMIC     | 15PF 5% 50V    |
| C13      | 1-126-101-11  | ELECT                       | 100MF 20% 16V | C404     | 1-123-379-00 | ELECT       | 0.47MF 20% 50V |
| C14      | 1-126-101-11  | ELECT                       | 100MF 20% 16V | C501     | 1-102-038-00 | CERAMIC     | 0.001MF 500V   |
| C15      | 1-126-101-11  | ELECT                       | 100MF 20% 16V | C502     | 1-124-915-11 | ELECT       | 10MF 20% 16V   |
|          |               |                             |               | C503     | 1-102-951-00 | CERAMIC     | 15PF 5% 50V    |
|          |               |                             |               | C504     | 1-123-379-00 | ELECT       | 0.47MF 20% 50V |

BA

| REF. NO. | PART NO.     | DESCRIPTION         | REMARK   | REF. NO. | PART NO. | DESCRIPTION  | REMARK                 |                      |
|----------|--------------|---------------------|----------|----------|----------|--------------|------------------------|----------------------|
| C601     | 1-102-038-00 | CERAMIC             | 0.001MF  | 500V     | Q6       | 8-729-900-65 | TRANSISTOR DTA144ES    |                      |
| C602     | 1-124-915-11 | ELECT               | 10MF     | 20%      | 16V      | Q101         | 8-729-266-82           | TRANSISTOR 2SC2668-0 |
| C603     | 1-102-951-00 | CERAMIC             | 15PF     | 5%       | 50V      | Q102         | 8-729-266-82           | TRANSISTOR 2SC2668-0 |
| C604     | 1-123-379-00 | ELECT               | 0.47MF   | 20%      | 50V      | Q103         | 8-729-266-82           | TRANSISTOR 2SC2668-0 |
| C701     | 1-102-976-00 | CERAMIC             | 180PF    | 5%       | 50V      | Q104         | 8-729-384-48           | TRANSISTOR 2SA844-E  |
| C702     | 1-102-947-00 | CERAMIC             | 10PF     | 0.5PF    | 50V      | Q105         | 8-729-266-82           | TRANSISTOR 2SC2668-0 |
| C703     | 1-124-915-11 | ELECT               | 10MF     | 20%      | 16V      | Q201         | 8-729-266-82           | TRANSISTOR 2SC2668-0 |
| C704     | 1-124-910-11 | ELECT               | 47MF     | 20%      | 16V      | Q202         | 8-729-266-82           | TRANSISTOR 2SC2668-0 |
| C705     | 1-136-153-00 | FILM                | 0.01MF   | 5%       | 50V      | Q203         | 8-729-266-82           | TRANSISTOR 2SC2668-0 |
| C706     | 1-124-791-11 | ELECT               | 1MF      | 20%      | 50V      | Q204         | 8-729-384-48           | TRANSISTOR 2SA844-E  |
| C707     | 1-123-369-00 | ELECT               | 4.7MF    | 20%      | 25V      | Q205         | 8-729-266-82           | TRANSISTOR 2SC2668-0 |
| C708     | 1-124-915-11 | ELECT               | 10MF     | 20%      | 16V      | Q301         | 8-729-266-82           | TRANSISTOR 2SC2668-0 |
| C709     | 1-102-973-00 | CERAMIC             | 100PF    | 5%       | 50V      | Q302         | 8-729-266-82           | TRANSISTOR 2SC2668-0 |
| C710     | 1-130-481-00 | MYLAR               | 0.0068MF | 5%       | 50V      | Q303         | 8-729-266-82           | TRANSISTOR 2SC2668-0 |
| C711     | 1-136-155-00 | FILM                | 0.015MF  | 5%       | 50V      | Q304         | 8-729-384-48           | TRANSISTOR 2SA844-E  |
| C712     | 1-130-471-00 | MYLAR               | 0.001MF  | 5%       | 50V      | Q305         | 8-729-266-82           | TRANSISTOR 2SC2668-0 |
| C713     | 1-124-791-11 | ELECT               | 1MF      | 20%      | 50V      | Q401         | 8-729-266-82           | TRANSISTOR 2SC2668-0 |
| C714     | 1-102-973-00 | CERAMIC             | 100PF    | 5%       | 50V      | Q402         | 8-729-266-82           | TRANSISTOR 2SC2668-0 |
| C715     | 1-101-361-00 | CERAMIC             | 150PF    | 5%       | 50V      | Q403         | 8-729-266-82           | TRANSISTOR 2SC2668-0 |
| C716     | 1-136-153-00 | FILM                | 0.01MF   | 5%       | 50V      | Q404         | 8-729-384-48           | TRANSISTOR 2SA844-E  |
| C717     | 1-102-973-00 | CERAMIC             | 100PF    | 5%       | 50V      | Q405         | 8-729-266-82           | TRANSISTOR 2SC2668-0 |
|          |              |                     |          |          | Q501     | 8-729-266-82 | TRANSISTOR 2SC2668-0   |                      |
|          |              |                     |          |          | Q502     | 8-729-266-82 | TRANSISTOR 2SC2668-0   |                      |
|          |              |                     |          |          | Q503     | 8-729-266-82 | TRANSISTOR 2SC2668-0   |                      |
|          |              |                     |          |          | Q504     | 8-729-384-48 | TRANSISTOR 2SA844-E    |                      |
|          |              | <TRIMMER>           |          |          |          |              |                        |                      |
| CV101    | 1-141-179-12 | CAP, VAR, TRIMMER   |          |          | Q505     | 8-729-266-82 | TRANSISTOR 2SC2668-0   |                      |
| CV102    | 1-141-260-00 | TRIMAR, CERAMIC     |          |          | Q601     | 8-729-266-82 | TRANSISTOR 2SC2668-0   |                      |
| CV201    | 1-141-179-12 | CAP, VAR, TRIMMER   |          |          | Q602     | 8-729-266-82 | TRANSISTOR 2SC2668-0   |                      |
| CV202    | 1-141-260-00 | TRIMAR, CERAMIC     |          |          | Q603     | 8-729-266-82 | TRANSISTOR 2SC2668-0   |                      |
| CV401    | 1-141-179-12 | CAP, VAR, TRIMMER   |          |          | Q604     | 8-729-384-48 | TRANSISTOR 2SA844-E    |                      |
| CV402    | 1-141-260-00 | TRIMAR, CERAMIC     |          |          | Q605     | 8-729-266-82 | TRANSISTOR 2SC2668-0   |                      |
| CV501    | 1-141-179-12 | CAP, VAR, TRIMMER   |          |          | Q701     | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |                      |
| CV502    | 1-141-260-00 | TRIMAR, CERAMIC     |          |          | Q702     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |                      |
| CV601    | 1-141-179-12 | CAP, VAR, TRIMMER   |          |          | Q703     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |                      |
| CV602    | 1-141-260-00 | TRIMAR, CERAMIC     |          |          | Q704     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |                      |
|          |              | <DIODE>             |          |          | Q705     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |                      |
| D1       | 8-719-109-63 | DIODE RD3.0ESB2     |          |          | Q706     | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |                      |
| D2       | 8-719-000-06 | DIODE MC921         |          |          | Q707     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |                      |
| D4       | 8-719-000-04 | DIODE MC911         |          |          | Q708     | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |                      |
| D701     | 8-719-911-19 | DIODE ISS119        |          |          | Q709     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |                      |
| D702     | 8-719-109-75 | DIODE RD4.3ESB2     |          |          | Q710     | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |                      |
| D703     | 8-719-911-19 | DIODE ISS119        |          |          | Q711     | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |                      |
| D704     | 8-719-911-19 | DIODE ISS119        |          |          | Q712     | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |                      |
| D705     | 8-719-911-19 | DIODE ISS119        |          |          | Q713     | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |                      |
| D706     | 8-719-911-19 | DIODE ISS119        |          |          | Q714     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |                      |
| D707     | 8-719-911-19 | DIODE ISS119        |          |          | Q715     | 8-729-800-10 | TRANSISTOR 2SC3068     |                      |
| D708     | 8-719-911-19 | DIODE ISS119        |          |          | Q716     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |                      |
| D709     | 8-719-911-19 | DIODE ISS119        |          |          | Q717     | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |                      |
| D710     | 8-719-911-19 | DIODE ISS119        |          |          |          |              |                        |                      |
|          |              | <RESISTOR>          |          |          |          |              |                        |                      |
|          |              | <IC>                |          |          | R1       | 1-249-405-11 | CARBON                 |                      |
| IC1      | 8-759-208-94 | IC CX-894           |          |          | R2       | 1-249-405-11 | CARBON                 |                      |
| IC2      | 8-759-208-94 | IC CX-894           |          |          | R3       | 1-249-405-11 | CARBON                 |                      |
| IC3      | 8-759-140-53 | IC UPD4053BC        |          |          | R4       | 1-249-437-11 | CARBON                 |                      |
|          |              | <TRANSISTOR>        |          |          | R5       | 1-249-405-11 | CARBON                 |                      |
| Q1       | 8-729-900-89 | TRANSISTOR DTC144ES |          |          | R6       | 1-249-432-11 | CARBON                 |                      |
| Q2       | 8-729-384-48 | TRANSISTOR 2SA844-E |          |          | R7       | 1-249-434-11 | CARBON                 |                      |
| Q3       | 8-729-900-89 | TRANSISTOR DTC144ES |          |          | R8       | 1-249-422-11 | CARBON                 |                      |
| Q4       | 8-729-900-89 | TRANSISTOR DTC144ES |          |          | R9       | 1-249-405-11 | CARBON                 |                      |
| Q5       | 8-729-900-89 | TRANSISTOR DTC144ES |          |          | R10      | 1-249-405-11 | CARBON                 |                      |
|          |              |                     |          |          | R11      | 1-249-433-11 | CARBON                 |                      |
|          |              |                     |          |          | R12      | 1-249-405-11 | CARBON                 |                      |
|          |              |                     |          |          | R13      | 1-249-437-11 | CARBON                 |                      |

| REF. NO. | PART NO.     | DESCRIPTION | REMARK       | REF. NO. | PART NO.     | DESCRIPTION          | REMARK              |
|----------|--------------|-------------|--------------|----------|--------------|----------------------|---------------------|
| R14      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R512     | 1-249-421-11 | CARBON               | 2.2K 5% 1/4W        |
| R101     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R513     | 1-249-393-11 | CARBON               | 10 5% 1/4W          |
| R102     | 1-249-418-11 | CARBON      | 1.2K 5% 1/4W | R601     | 1-249-417-11 | CARBON               | 1K 5% 1/4W          |
| R103     | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W | R602     | 1-249-418-11 | CARBON               | 1.2K 5% 1/4W        |
| R104     | 1-249-405-11 | CARBON      | 100 5% 1/4W  | R603     | 1-249-425-11 | CARBON               | 4.7K 5% 1/4W        |
| R105     | 1-215-437-00 | METAL       | 4.7K 1% 1/4W | R604     | 1-249-405-11 | CARBON               | 100 5% 1/4W         |
| R106     | 1-249-430-11 | CARBON      | 12K 5% 1/4W  | R605     | 1-215-437-00 | METAL                | 4.7K 1% 1/4W        |
| R107     | 1-249-433-11 | CARBON      | 22K 5% 1/4W  | R606     | 1-249-430-11 | CARBON               | 12K 5% 1/4W         |
| R108     | 1-215-427-00 | METAL       | 1.8K 1% 1/4W | R607     | 1-249-433-11 | CARBON               | 22K 5% 1/4W         |
| R109     | 1-215-415-00 | METAL       | 560 1% 1/4W  | R608     | 1-215-427-00 | METAL                | 1.8K 1% 1/4W        |
| R110     | 1-249-405-11 | CARBON      | 100 5% 1/4W  | R609     | 1-215-415-00 | METAL                | 560 1% 1/4W         |
| R111     | 1-215-431-00 | METAL       | 2.7K 1% 1/4W | R610     | 1-249-405-11 | CARBON               | 100 5% 1/4W         |
| R112     | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W | R611     | 1-215-431-00 | METAL                | 2.7K 1% 1/4W        |
| R113     | 1-249-393-11 | CARBON      | 10 5% 1/4W   | R612     | 1-249-421-11 | CARBON               | 2.2K 5% 1/4W        |
| R201     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R613     | 1-249-393-11 | CARBON               | 10 5% 1/4W          |
| R202     | 1-249-418-11 | CARBON      | 1.2K 5% 1/4W | R701     | 1-249-433-11 | CARBON               | 22K 5% 1/4W         |
| R203     | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W | R702     | 1-249-438-11 | CARBON               | 56K 5% 1/4W         |
| R204     | 1-249-405-11 | CARBON      | 100 5% 1/4W  | R703     | 1-249-417-11 | CARBON               | 1K 5% 1/4W          |
| R205     | 1-215-437-00 | METAL       | 4.7K 1% 1/4W | R704     | 1-249-417-11 | CARBON               | 1K 5% 1/4W          |
| R206     | 1-249-430-11 | CARBON      | 12K 5% 1/4W  | R705     | 1-249-424-11 | CARBON               | 3.9K 5% 1/4W        |
| R207     | 1-249-433-11 | CARBON      | 22K 5% 1/4W  | R706     | 1-249-417-11 | CARBON               | 1K 5% 1/4W          |
| R208     | 1-215-427-00 | METAL       | 1.8K 1% 1/4W | R707     | 1-249-429-11 | CARBON               | 10K 5% 1/4W         |
| R209     | 1-215-415-00 | METAL       | 560 1% 1/4W  | R708     | 1-249-421-11 | CARBON               | 2.2K 5% 1/4W        |
| R210     | 1-249-405-11 | CARBON      | 100 5% 1/4W  | R709     | 1-249-419-11 | CARBON               | 1.5K 5% 1/4W        |
| R211     | 1-215-431-00 | METAL       | 2.7K 1% 1/4W | R710     | 1-249-418-11 | CARBON               | 1.2K 5% 1/4W        |
| R212     | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W | R711     | 1-249-434-11 | CARBON               | 27K 5% 1/4W         |
| R213     | 1-249-393-11 | CARBON      | 10 5% 1/4W   | R712     | 1-249-433-11 | CARBON               | 22K 5% 1/4W         |
| R301     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R713     | 1-249-422-11 | CARBON               | 2.7K 5% 1/4W        |
| R302     | 1-249-418-11 | CARBON      | 1.2K 5% 1/4W | R714     | 1-249-427-11 | CARBON               | 6.8K 5% 1/4W        |
| R303     | 1-249-426-11 | CARBON      | 5.6K 5% 1/4W | R715     | 1-249-433-11 | CARBON               | 22K 5% 1/4W         |
| R304     | 1-249-405-11 | CARBON      | 100 5% 1/4W  | R716     | 1-249-422-11 | CARBON               | 2.7K 5% 1/4W        |
| R305     | 1-249-426-11 | CARBON      | 5.6K 5% 1/4W | R717     | 1-249-425-11 | CARBON               | 4.7K 5% 1/4W        |
| R306     | 1-249-430-11 | CARBON      | 12K 5% 1/4W  | R718     | 1-249-410-11 | CARBON               | 270 5% 1/4W         |
| R307     | 1-249-432-11 | CARBON      | 18K 5% 1/4W  | R719     | 1-249-414-11 | CARBON               | 560 5% 1/4W         |
| R308     | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W | R720     | 1-247-850-11 | CARBON               | 6.2K 5% 1/4W        |
| R309     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R721     | 1-249-438-11 | CARBON               | 56K 5% 1/4W         |
| R310     | 1-249-405-11 | CARBON      | 100 5% 1/4W  | R722     | 1-249-441-11 | CARBON               | 100K 5% 1/4W        |
| R311     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R723     | 1-249-437-11 | CARBON               | 47K 5% 1/4W         |
| R312     | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W | R724     | 1-249-429-11 | CARBON               | 10K 5% 1/4W         |
| R313     | 1-249-393-11 | CARBON      | 10 5% 1/4W   | R725     | 1-249-438-11 | CARBON               | 56K 5% 1/4W         |
| R401     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R726     | 1-247-895-00 | CARBON               | 470K 5% 1/4W        |
| R402     | 1-249-418-11 | CARBON      | 1.2K 5% 1/4W | R727     | 1-249-425-11 | CARBON               | 4.7K 5% 1/4W        |
| R403     | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W | R728     | 1-249-435-11 | CARBON               | 33K 5% 1/4W         |
| R404     | 1-249-405-11 | CARBON      | 100 5% 1/4W  | R729     | 1-249-423-11 | CARBON               | 3.3K 5% 1/4W        |
| R405     | 1-215-437-00 | METAL       | 4.7K 1% 1/4W | R730     | 1-249-421-11 | CARBON               | 2.2K 5% 1/4W        |
| R406     | 1-249-430-11 | CARBON      | 12K 5% 1/4W  | R731     | 1-249-422-11 | CARBON               | 2.7K 5% 1/4W        |
| R407     | 1-249-433-11 | CARBON      | 22K 5% 1/4W  | R732     | 1-249-422-11 | CARBON               | 2.7K 5% 1/4W        |
| R408     | 1-215-427-00 | METAL       | 1.8K 1% 1/4W | R733     | 1-249-421-11 | CARBON               | 2.2K 5% 1/4W        |
| R409     | 1-215-415-00 | METAL       | 560 1% 1/4W  | R734     | 1-249-421-11 | CARBON               | 2.2K 5% 1/4W        |
| R410     | 1-249-405-11 | CARBON      | 100 5% 1/4W  | R735     | 1-249-421-11 | CARBON               | 2.2K 5% 1/4W        |
| R411     | 1-215-431-00 | METAL       | 2.7K 1% 1/4W | R736     | 1-249-425-11 | CARBON               | 4.7K 5% 1/4W        |
| R412     | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W | R737     | 1-249-405-11 | CARBON               | 100 5% 1/4W         |
| R413     | 1-249-393-11 | CARBON      | 10 5% 1/4W   | R738     | 1-249-441-11 | CARBON               | 100K 5% 1/4W        |
| R501     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R739     | 1-249-433-11 | CARBON               | 22K 5% 1/4W         |
| R502     | 1-249-418-11 | CARBON      | 1.2K 5% 1/4W | R740     | 1-249-417-11 | CARBON               | 1K 5% 1/4W          |
| R503     | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W | R741     | 1-202-473-00 | SOLID                | 5.6M 5% 1/4W        |
| R504     | 1-249-405-11 | CARBON      | 100 5% 1/4W  | R906     | 1-249-389-11 | CARBON               | 4.7 5% 1/4W         |
| R505     | 1-215-437-00 | METAL       | 4.7K 1% 1/4W | R907     | 1-249-389-11 | CARBON               | 4.7 5% 1/4W         |
| R506     | 1-249-430-11 | CARBON      | 12K 5% 1/4W  |          |              |                      |                     |
| R507     | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |          |              |                      |                     |
| R508     | 1-215-427-00 | METAL       | 1.8K 1% 1/4W |          |              |                      | <VARIABLE RESISTOR> |
| R509     | 1-215-415-00 | METAL       | 560 1% 1/4W  |          |              |                      |                     |
| R510     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |          |              |                      |                     |
| R511     | 1-215-431-00 | METAL       | 2.7K 1% 1/4W |          |              |                      |                     |
|          |              |             |              | RV101    | 1-237-514-21 | RES, ADJ, CERMET 500 |                     |
|          |              |             |              | RV201    | 1-237-514-21 | RES, ADJ, CERMET 500 |                     |

**BA**    **BC**

| REF. NO.   | PART NO.     | DESCRIPTION          | REMARK  | REF. NO. | PART NO.     | DESCRIPTION  | REMARK       |                 |             |
|--|--------------|----------------------|---------|----------|--------------|--------------|--------------|-----------------|-------------|
| RV401  | 1-237-514-21 | RES, ADJ, CERMET 500 |         | C122     | 1-124-034-51 | ELECT        | 33MF         |                 |             |
| RV501  | 1-237-514-21 | RES, ADJ, CERMET 500 |         | C123     | 1-124-034-51 | ELECT        | 33MF         |                 |             |
| RV601  | 1-237-514-21 | RES, ADJ, CERMET 500 |         | C126     | 1-101-004-00 | CERAMIC      | 0.01MF       |                 |             |
| *****  |              |                      |         | C127     | 1-101-004-00 | CERAMIC      | 0.01MF       |                 |             |
| *A-1135-357-A BC BOARD, COMPLETE (BVM-1911 ONLY) |              |                      |         | C128     | 1-101-004-00 | CERAMIC      | 0.01MF       |                 |             |
| *****  |              |                      |         | C131     | 1-124-034-51 | ELECT        | 33MF         |                 |             |
|  |              |                      |         | C132     | 1-124-034-51 | ELECT        | 33MF         |                 |             |
|  |              |                      |         | C133     | 1-124-034-51 | ELECT        | 33MF         |                 |             |
| *4-353-708-00 HOOK, FINGER                       |              |                      |         | C136     | 1-101-004-00 | CERAMIC      | 0.01MF       |                 |             |
| <CAPACITOR>                                      |              |                      |         | C137     | 1-101-004-00 | CERAMIC      | 0.01MF       |                 |             |
| C1   | 1-102-951-00 | CERAMIC              | 15PF    | 5%       | 50V          | C138         | 1-101-004-00 | CERAMIC         | 0.01MF      |
| C2   | 1-102-951-00 | CERAMIC              | 15PF    | 5%       | 50V          | C139         | 1-101-004-00 | CERAMIC         | 0.01MF      |
| C3   | 1-102-947-00 | CERAMIC              | 10PF    | 0.5PF    | 50V          | C143         | 1-101-004-00 | CERAMIC         | 0.01MF      |
| C4   | 1-101-880-00 | CERAMIC              | 47PF    | 5%       | 50V          | C144         | 1-126-233-11 | ELECT           | 22MF        |
| C5   | 1-102-965-00 | CERAMIC              | 39PF    | 5%       | 50V          | C201         | 1-124-917-11 | ELECT           | 33MF        |
| C6   | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | C202         | 1-101-004-00 | CERAMIC         | 0.01MF      |
| C7   | 1-102-935-00 | CERAMIC              | 2PF     | 0.25PF   | 50V          | <TRIMMER>    |              |                 |             |
| C8   | 1-101-361-00 | CERAMIC              | 39PF    | 5%       | 50V          | CV1          | 1-141-171-00 | CAP, TRIMMER    | 15P         |
| C9   | 1-124-915-11 | ELECT                | 10MF    | 20%      | 16V          | CV2          | 1-141-171-00 | CAP, TRIMMER    | 15P         |
| C10  | 1-124-915-11 | ELECT                | 10MF    | 20%      | 16V          | <DIODE>      |              |                 |             |
| C11  | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | D1           | 8-719-911-19 | DIODE           | 1SS119      |
| C12  | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | D2           | 8-719-920-95 | DIODE           | 1T25-0      |
| C13  | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | D3           | 8-719-911-19 | DIODE           | 1SS119      |
| C14  | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | D4           | 8-719-110-13 | DIODE           | RD9.1ESB2   |
| C15  | 1-124-910-11 | ELECT                | 47MF    | 20%      | 16V          | D5           | 8-719-911-19 | DIODE           | 1SS119      |
| C16  | 1-124-910-11 | ELECT                | 47MF    | 20%      | 16V          | D6           | 8-719-911-19 | DIODE           | 1SS119      |
| C17  | 1-124-034-51 | ELECT                | 33MF    | 20%      | 16V          | D7           | 8-719-911-19 | DIODE           | 1SS119      |
| C18  | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | C22          | 1-101-884-00 | CERAMIC         | 56PF        |
| C19  | 1-102-953-00 | CERAMIC              | 18PF    | 5%       | 50V          | C23          | 1-123-369-00 | ELECT           | 4.7MF       |
| C20  | 1-102-951-00 | CERAMIC              | 15PF    | 5%       | 50V          | C24          | 1-163-157-00 | FILM            | 0.022MF     |
| C21  | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | C25          | 1-163-157-00 | FILM            | 0.022MF     |
| C22  | 1-101-884-00 | CERAMIC              | 56PF    | 5%       | 50V          | C26          | 1-101-004-00 | CERAMIC         | 0.01MF      |
| C23  | 1-123-369-00 | ELECT                | 4.7MF   | 20%      | 25V          | <IC>         |              |                 |             |
| C24  | 1-163-157-00 | FILM                 | 0.022MF | 5%       | 50V          | IC1          | 8-759-204-21 | IC              | TA7193P     |
| C25  | 1-163-157-00 | FILM                 | 0.022MF | 5%       | 50V          | IC2          | 8-752-006-12 | IC              | CX20061     |
| C26  | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | IC3          | 8-759-140-53 | IC              | UPD4053BC   |
| C27  | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | C27          | 1-101-004-00 | CERAMIC         | 0.01MF      |
| C28  | 1-123-379-00 | ELECT                | 0.47MF  | 20%      | 50V          | C28          | 1-101-004-00 | CERAMIC         | 0.47MF      |
| C29  | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | C29          | 1-101-004-00 | CERAMIC         | 0.01MF      |
| C30  | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | C31          | 1-124-119-00 | ELECT           | 330MF       |
| C31  | 1-124-119-00 | ELECT                | 330MF   | 20%      | 16V          | L1           | 1-408-533-00 | COIL, VARIABLE  |             |
| C32  | 1-109-676-00 | MICA                 | 130PF   | 1%       | 500V         | L2           | 1-408-513-00 | COIL (VARIABLE) |             |
| C33  | 1-109-631-00 | MICA                 | 330PF   | 1%       | 500V         | L3           | 1-408-533-00 | COIL, VARIABLE  |             |
| C34  | 1-109-676-00 | CERAMIC              | 24PF    | 5%       | 50V          | L4           | 1-408-429-00 | INDUCTOR        | 470UH       |
| C35  | 1-109-631-00 | MICA                 | 130PF   | 1%       | 500V         | L5           | 1-408-429-00 | INDUCTOR        | 470UH       |
| C36  | 1-109-676-00 | CERAMIC              | 330PF   | 1%       | 500V         | L6           | 1-408-429-00 | INDUCTOR        | 470UH       |
| C37  | 1-109-631-00 | MICA                 | 24PF    | 5%       | 50V          | <COIL>       |              |                 |             |
| C38  | 1-109-676-00 | MICA                 | 130PF   | 1%       | 500V         | C34          | 1-109-676-00 | MICA            | 130PF       |
| C39  | 1-109-676-00 | MICA                 | 330PF   | 1%       | 500V         | C35          | 1-109-631-00 | MICA            | 330PF       |
| C40  | 1-109-631-00 | MICA                 | 24PF    | 5%       | 50V          | C36          | 1-109-676-00 | CERAMIC         | 24PF        |
| C41  | 1-102-960-00 | CERAMIC              | 24PF    | 5%       | 50V          | <TRANSISTOR> |              |                 |             |
| C42  | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | Q1           | 8-729-119-78 | TRANSISTOR      | 2SC2785-HFE |
| C50  | 1-102-942-00 | CERAMIC              | 5PF     | 0.5PF    | 50V          | Q2           | 8-729-119-78 | TRANSISTOR      | 2SC2785-HFE |
| C101   | 1-124-034-51 | ELECT                | 33MF    | 20%      | 16V          | Q3           | 8-729-119-78 | TRANSISTOR      | 2SC2785-HFE |
| C102   | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | Q4           | 8-729-800-10 | TRANSISTOR      | 2SC3068     |
| C103   | 1-124-917-11 | ELECT                | 33MF    | 20%      | 25V          | Q5           | 8-729-800-10 | TRANSISTOR      | 2SC3068     |
| C104   | 1-124-034-51 | ELECT                | 33MF    | 20%      | 16V          | Q6           | 8-729-119-78 | TRANSISTOR      | 2SC2785-HFE |
| C105   | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | Q7           | 8-729-119-78 | TRANSISTOR      | 2SC2785-HFE |
| C106   | 1-124-917-11 | ELECT                | 33MF    | 20%      | 25V          | Q8           | 8-729-119-78 | TRANSISTOR      | 2SC2785-HFE |
| C107   | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | Q9           | 8-729-384-48 | TRANSISTOR      | 2SA844-E    |
| C111   | 1-124-034-51 | ELECT                | 33MF    | 20%      | 16V          | Q10          | 8-729-119-78 | TRANSISTOR      | 2SC2785-HFE |
| C112   | 1-124-034-51 | ELECT                | 33MF    | 20%      | 16V          | Q11          | 8-729-384-48 | TRANSISTOR      | 2SA844-E    |
| C113   | 1-124-034-51 | ELECT                | 33MF    | 20%      | 16V          | Q12          | 8-729-119-78 | TRANSISTOR      | 2SC2785-HFE |
| C116   | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | Q13          | 8-729-384-48 | TRANSISTOR      | 2SA844-E    |
| C117   | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | Q14          | 8-729-384-48 | TRANSISTOR      | 2SA844-E    |
| C118   | 1-101-004-00 | CERAMIC              | 0.01MF  |          |              | Q15          | 8-729-119-78 | TRANSISTOR      | 2SC2785-HFE |
| C121   | 1-124-034-51 | ELECT                | 33MF    | 20%      | 16V          |              |              |                 |             |

BC

BD

| REF. NO.   | PART NO.     | DESCRIPTION            | REMARK       | REF. NO.                   | PART NO.  | DESCRIPTION         | REMARK         |  |
|------------|--------------|------------------------|--------------|----------------------------|---|---------------------|----------------|--|
| Q16        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R56                        | 1-249-441-11                                      | CARBON              | 100K 5% 1/4W   |  |
| Q17        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R57                        | 1-249-417-11                                      | CARBON              | 1K 5% 1/4W     |  |
| Q18        | 8-729-800-10 | TRANSISTOR 2SC3068     |              | R58                        | 1-249-417-11                                      | CARBON              | 1K 5% 1/4W     |  |
| Q19        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R59                        | 1-249-429-11                                      | CARBON              | 10K 5% 1/4W    |  |
| Q20        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R60                        | 1-249-433-11                                      | CARBON              | 22K 5% 1/4W    |  |
| Q21        | 8-729-800-10 | TRANSISTOR 2SC3068     |              | R61                        | 1-249-420-11                                      | CARBON              | 1.8K 5% 1/4W   |  |
| Q101       | 8-729-140-97 | TRANSISTOR 2SB734-34   |              | R62                        | 1-249-429-11                                      | CARBON              | 10K 5% 1/4W    |  |
| Q103       | 8-729-900-63 | TRANSISTOR DTA124ES    |              | R63                        | 1-249-425-11                                      | CARBON              | 4.7K 5% 1/4W   |  |
| Q104       | 8-729-900-63 | TRANSISTOR DTA124ES    |              | R64                        | 1-249-429-11                                      | CARBON              | 10K 5% 1/4W    |  |
| <RESISTOR> |              |                        |              | R65                        | 1-215-421-00                                      | METAL               | 1K 1% 1/4W     |  |
| R1         | 1-249-428-11 | CARBON                 | 8.2K 5% 1/4W | R68                        | 1-249-427-11                                      | CARBON              | 6.8K 5% 1/4W   |  |
| R2         | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  | R69                        | 1-215-420-00                                      | METAL               | 910 1% 1/4W    |  |
| R3         | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R70                        | 1-215-420-00                                      | METAL               | 910 1% 1/4W    |  |
| R4         | 1-249-422-11 | CARBON                 | 2.7K 5% 1/4W | R71                        | 1-215-417-00                                      | METAL               | 680 1% 1/4W    |  |
| R5         | 1-215-421-00 | METAL                  | 1K 1% 1/4W   | R72                        | 1-249-422-11                                      | CARBON              | 2.7K 5% 1/4W   |  |
| R6         | 1-215-398-00 | METAL                  | 110 1% 1/4W  | R73                        | 1-249-405-11                                      | CARBON              | 100 5% 1/4W    |  |
| R7         | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R74                        | 1-215-421-00                                      | METAL               | 1K 1% 1/4W     |  |
| R8         | 1-215-421-00 | METAL                  | 1K 1% 1/4W   | R77                        | 1-249-427-11                                      | CARBON              | 6.8K 5% 1/4W   |  |
| R9         | 1-215-421-00 | METAL                  | 1K 1% 1/4W   | R78                        | 1-215-420-00                                      | METAL               | 910 1% 1/4W    |  |
| R10        | 1-215-423-00 | METAL                  | 1.2K 1% 1/4W | R79                        | 1-215-420-00                                      | METAL               | 910 1% 1/4W    |  |
| R11        | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R80                        | 1-215-417-00                                      | METAL               | 680 1% 1/4W    |  |
| R12        | 1-215-425-00 | METAL                  | 1.5K 1% 1/4W | R81                        | 1-249-422-11                                      | CARBON              | 2.7K 5% 1/4W   |  |
| R13        | 1-215-425-00 | METAL                  | 1.5K 1% 1/4W | R82                        | 1-249-405-11                                      | CARBON              | 100 5% 1/4W    |  |
| R14        | 1-215-405-00 | METAL                  | 220 1% 1/4W  | R83                        | 1-215-481-00                                      | METAL               | 330K 1% 1/4W   |  |
| R15        | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R85                        | 1-215-429-00                                      | METAL               | 2.2K 1% 1/4W   |  |
| R16        | 1-249-433-11 | CARBON                 | 22K 5% 1/4W  | R86                        | 1-215-415-00                                      | METAL               | 560 1% 1/4W    |  |
| R17        | 1-249-433-11 | CARBON                 | 22K 5% 1/4W  | R87                        | 1-215-477-00                                      | METAL               | 220K 1% 1/4W   |  |
| R18        | 1-249-421-11 | CARBON                 | 2.2K 5% 1/4W | R88                        | 1-215-457-00                                      | METAL               | 33K 1% 1/4W    |  |
| R19        | 1-249-425-11 | CARBON                 | 4.7K 5% 1/4W | R90                        | 1-249-429-11                                      | CARBON              | 10K 5% 1/4W    |  |
| R20        | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  | R91                        | 1-249-433-11                                      | CARBON              | 22K 5% 1/4W    |  |
| R22        | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  | R95                        | 1-249-429-11                                      | CARBON              | 10K 5% 1/4W    |  |
| R23        | 1-249-431-11 | CARBON                 | 15K 5% 1/4W  | R96                        | 1-249-433-11                                      | CARBON              | 22K 5% 1/4W    |  |
| R24        | 1-249-428-11 | CARBON                 | 8.2K 5% 1/4W | R101                       | 1-249-423-11                                      | CARBON              | 3.3K 5% 1/4W   |  |
| R25        | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R102                       | 1-249-419-11                                      | CARBON              | 1.5K 5% 1/4W   |  |
| R26        | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   | R103                       | 1-249-427-11                                      | CARBON              | 6.8K 5% 1/4W   |  |
| R27        | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R104                       | 1-249-422-11                                      | CARBON              | 2.7K 5% 1/4W   |  |
| R28        | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   | R105                       | 1-249-429-11                                      | CARBON              | 10K 5% 1/4W    |  |
| R29        | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R202                       | 1-249-429-11                                      | CARBON              | 10K 5% 1/4W    |  |
| R30        | 1-249-425-11 | CARBON                 | 4.7K 5% 1/4W | <VARIABLE RESISTOR>        |   |                     |                |  |
| R31        | 1-249-425-11 | CARBON                 | 4.7K 5% 1/4W | RV1                        | 1-237-500-21                                      | RES, ADJ, CERMET    | 1K             |  |
| R32        | 1-249-433-11 | CARBON                 | 22K 5% 1/4W  | RV2                        | 1-237-504-21                                      | RES, ADJ, CERMET    | 20K            |  |
| R33        | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | RV3                        | 1-237-499-21                                      | RES, ADJ, CERMET    | 500            |  |
| R34        | 1-215-425-00 | METAL                  | 1.5K 1% 1/4W | RV4                        | 1-237-501-21                                      | RES, ADJ, CERMET    | 2K             |  |
| R35        | 1-215-425-00 | METAL                  | 1.5K 1% 1/4W | RV5                        | 1-237-501-21                                      | RES, ADJ, CERMET    | 2K             |  |
| R36        | 1-215-425-00 | METAL                  | 1.5K 1% 1/4W | <CRYSTAL>                  |   |                     |                |  |
| R37        | 1-215-425-00 | METAL                  | 1.5K 1% 1/4W | X1                         | 1-567-505-11                                      | OSCILLATOR, CRYSTAL |                |  |
| R38        | 1-215-439-00 | METAL                  | 5.6K 1% 1/4W | *****                      |   |                     |                |  |
| R39        | 1-215-469-00 | METAL                  | 100K 1% 1/4W | R42                        | *A-1135-391-A BD BOARD, COMPLETE (BVM-2011P ONLY) |                     |                |  |
| R40        | 1-247-903-00 | CARBON                 | 1M 5% 1/4W   | *****                      |   |                     |                |  |
| R41        | 1-249-427-11 | CARBON                 | 6.8K 5% 1/4W | *4-353-708-00 HOOK, FINGER |   |                     |                |  |
| R42        | 1-249-420-11 | CARBON                 | 1.8K 5% 1/4W | *****                      |   |                     |                |  |
| R43        | 1-249-415-11 | CARBON                 | 680 5% 1/4W  | *****                      |   |                     |                |  |
| R44        | 1-249-418-11 | CARBON                 | 1.2K 5% 1/4W | *****                      |   |                     |                |  |
| R45        | 1-249-422-11 | CARBON                 | 2.7K 5% 1/4W | *****                      |   |                     |                |  |
| R47        | 1-249-413-11 | CARBON                 | 470 5% 1/4W  | *****                      |   |                     |                |  |
| R49        | 1-249-413-11 | CARBON                 | 470 5% 1/4W  | <CAPACITOR>                |   |                     |                |  |
| R50        | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | C1                         | 1-102-947-00                                      | CERAMIC             | 10PF 0.5PF 50V |  |
| R51        | 1-215-417-00 | METAL                  | 680 1% 1/4W  | C2                         | 1-102-947-00                                      | CERAMIC             | 10PF 0.5PF 50V |  |
| R52        | 1-215-417-00 | METAL                  | 680 1% 1/4W  | C3                         | 1-102-963-00                                      | CERAMIC             | 33PF 5% 50V    |  |
| R53        | 1-215-413-00 | METAL                  | 470 1% 1/4W  | C4                         | 1-101-880-00                                      | CERAMIC             | 47PF 5% 50V    |  |
| R54        | 1-215-443-00 | METAL                  | 8.2K 1% 1/4W | C6                         | 1-101-888-00                                      | CERAMIC             | 68PF 5% 50V    |  |
| R55        | 1-249-421-11 | CARBON                 | 2.2K 5% 1/4W |                            |   |                     |                |  |

BD

| REF. NO. | PART NO.     | DESCRIPTION |         | REMARK | REF. NO. | PART NO. | DESCRIPTION  |                   | REMARK |        |     |
|----------|--------------|-------------|---------|--------|----------|----------|--------------|-------------------|--------|--------|-----|
| C7       | 1-102-963-00 | CERAMIC     | 33PF    | 5%     | 50V      | C103     | 1-124-034-51 | ELECT             | 33MF   | 20%    | 16V |
| C8       | 1-102-943-00 | CERAMIC     | 6PF     | 0.5PF  | 50V      | C104     | 1-124-034-51 | ELECT             | 33MF   | 20%    | 16V |
| C9       | 1-126-966-11 | ELECT       | 10MF    | 20%    | 16V      | C106     | 1-124-034-51 | ELECT             | 33MF   | 20%    | 16V |
| C10      | 1-126-966-11 | ELECT       | 10MF    | 20%    | 16V      | C107     | 1-124-034-51 | ELECT             | 33MF   | 20%    | 16V |
| C11      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C108     | 1-124-034-51 | ELECT             | 33MF   | 20%    | 16V |
| C12      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C109     | 1-124-034-51 | ELECT             | 33MF   | 20%    | 16V |
| C13      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C110     | 1-124-034-51 | ELECT             | 33MF   | 20%    | 16V |
| C14      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C111     | 1-124-034-51 | ELECT             | 33MF   | 20%    | 16V |
| C15      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C112     | 1-124-119-00 | ELECT             | 330MF  | 20%    | 16V |
| C16      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C114     | 1-124-034-51 | ELECT             | 33MF   | 20%    | 16V |
| C17      | 1-136-165-00 | FILM        | 0.1MF   | 5%     | 50V      | C115     | 1-124-034-51 | ELECT             | 33MF   | 20%    | 16V |
| C18      | 1-102-950-00 | CERAMIC     | 13PF    | 5%     | 50V      | C121     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C19      | 1-102-951-00 | CERAMIC     | 15PF    | 5%     | 50V      | C122     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C20      | 1-101-888-00 | CERAMIC     | 68PF    | 5%     | 50V      | C123     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C21      | 1-163-157-00 | FILM        | 0.022MF | 5%     | 50V      | C124     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C22      | 1-163-157-00 | FILM        | 0.022MF | 5%     | 50V      | C125     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C23      | 1-124-903-11 | ELECT       | 1MF     | 20%    | 50V      | C126     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C24      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C200     | 1-124-034-51 | ELECT             | 33MF   | 20%    | 16V |
| C25      | 1-124-910-11 | ELECT       | 47MF    | 20%    | 16V      | C201     | 1-124-910-11 | ELECT             | 47MF   | 20%    | 25V |
| C26      | 1-109-628-00 | MICA        | 160PF   | 1%     | 500V     | C202     | 1-124-034-51 | ELECT             | 33MF   | 20%    | 16V |
| C27      | 1-102-960-00 | CERAMIC     | 24PF    | 5%     | 50V      | C203     | 1-124-034-51 | ELECT             | 33MF   | 20%    | 16V |
| C28      | 1-109-631-00 | MICA        | 330PF   | 1%     | 500V     | C204     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C29      | 1-124-910-11 | ELECT       | 47MF    | 20%    | 16V      | C220     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C30      | 1-109-628-00 | MICA        | 160PF   | 1%     | 500V     | C221     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C31      | 1-102-960-00 | CERAMIC     | 24PF    | 5%     | 50V      | C222     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C32      | 1-109-631-00 | MICA        | 330PF   | 1%     | 500V     | C224     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C33      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C225     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C34      | 1-136-153-00 | FILM        | 0.01MF  | 5%     | 50V      | C226     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C35      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C227     | 1-126-233-11 | ELECT             | 22MF   | 20%    | 25V |
| C36      | 1-124-902-00 | ELECT       | 0.47MF  | 20%    | 50V      | C250     | 1-124-034-51 | ELECT             | 33MF   | 20%    | 16V |
| C37      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C251     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C38      | 1-123-382-00 | ELECT       | 3.3MF   | 20%    | 50V      | C301     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C39      | 1-109-667-11 | MICA        | 56PF    | 1%     | 500V     | C302     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C40      | 1-102-942-00 | CERAMIC     | 5PF     | 0.5PF  | 50V      | C303     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C41      | 1-109-621-00 | MICA        | 220PF   | 1%     | 500V     | C304     | 1-102-947-00 | CERAMIC           | 10PF   | 0.5PF  | 50V |
| C43      | 1-124-910-11 | ELECT       | 47MF    | 20%    | 16V      | C312     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C44      | 1-124-910-11 | ELECT       | 47MF    | 20%    | 16V      | C313     | 1-101-004-00 | CERAMIC           | 0.01MF |        | 50V |
| C45      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C316     | 1-102-935-00 | CERAMIC           | 2PF    | 0.25PF | 50V |
| C46      | 1-136-153-00 | FILM        | 0.01MF  | 5%     | 50V      | C350     | 1-102-963-00 | CERAMIC           | 33PF   | 5%     | 50V |
| C49      | 1-124-902-00 | ELECT       | 0.47MF  | 20%    | 50V      |          |              |                   |        |        |     |
| C50      | 1-123-382-00 | ELECT       | 3.3MF   | 20%    | 50V      |          |              |                   |        |        |     |
| C51      | 1-109-667-11 | MICA        | 56PF    | 1%     | 500V     |          |              |                   |        |        |     |
| C52      | 1-102-942-00 | CERAMIC     | 5PF     | 0.5PF  | 50V      |          |              |                   |        |        |     |
| C53      | 1-109-621-00 | MICA        | 220PF   | 1%     | 500V     |          |              |                   |        |        |     |
| C55      | 1-124-910-11 | ELECT       | 47MF    | 20%    | 16V      |          |              |                   |        |        |     |
|          |              |             |         |        |          | CV1      | 1-141-171-00 | CAP, TRIMMER 15P  |        |        |     |
|          |              |             |         |        |          | CV2      | 1-141-179-12 | CAP, VAR, TRIMMER |        |        |     |
| C56      | 1-124-910-11 | ELECT       | 47MF    | 20%    | 16V      |          |              |                   |        |        |     |
| C57      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      |          |              |                   |        |        |     |
| C58      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      |          |              |                   |        |        |     |
| C59      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      |          |              |                   |        |        |     |
| C60      | 1-124-910-11 | ELECT       | 47MF    | 20%    | 16V      | D1       | 8-719-911-19 | DIODE 1SS119      |        |        |     |
|          |              |             |         |        |          | D2       | 8-719-911-19 | DIODE 1SS119      |        |        |     |
|          |              |             |         |        |          | D4       | 8-719-109-63 | DIODE RD3.0ESB2   |        |        |     |
| C62      | 1-102-960-00 | CERAMIC     | 24PF    | 5%     | 50V      | D5       | 8-719-110-13 | DIODE RD9.1ESB2   |        |        |     |
| C63      | 1-101-884-00 | CERAMIC     | 56PF    | 5%     | 50V      | D6       | 8-719-911-19 | DIODE 1SS119      |        |        |     |
| C64      | 1-101-884-00 | CERAMIC     | 56PF    | 5%     | 50V      | D10      | 8-719-920-95 | DIODE 1T25-0      |        |        |     |
| C65      | 1-102-951-00 | CERAMIC     | 15PF    | 5%     | 50V      | D11      | 8-719-911-19 | DIODE 1SS119      |        |        |     |
| C66      | 1-102-965-00 | CERAMIC     | 39PF    | 5%     | 50V      | D12      | 8-719-110-31 | DIODE RD12ESB2    |        |        |     |
| C67      | 1-102-935-00 | CERAMIC     | 2PF     | 0.25PF | 50V      | D13      | 8-719-110-31 | DIODE RD12ESB2    |        |        |     |
| C68      | 1-124-034-51 | ELECT       | 33MF    | 20%    | 16V      | D16      | 8-719-911-19 | DIODE 1SS119      |        |        |     |
| C69      | 1-124-034-51 | ELECT       | 33MF    | 20%    | 16V      | D201     | 8-719-911-19 | DIODE 1SS119      |        |        |     |
| C70      | 1-123-369-00 | ELECT       | 4.7MF   | 20%    | 50V      | D202     | 8-719-911-19 | DIODE 1SS119      |        |        |     |
| C71      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      |          |              |                   |        |        |     |
| C75      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      |          |              |                   |        |        |     |
| C100     | 1-124-034-51 | ELECT       | 33MF    | 20%    | 16V      |          |              |                   |        |        |     |
| C101     | 1-124-910-11 | ELECT       | 47MF    | 20%    | 25V      |          |              |                   |        |        |     |
| C102     | 1-124-034-51 | ELECT       | 33MF    | 20%    | 16V      | IC1      | 8-759-204-21 | IC TA7193P        |        |        |     |

| REF. NO.                  | PART NO.      | DESCRIPTION              | REMARK                  | REF. NO.     | PART NO. | DESCRIPTION | REMARK  |  |
|---------------------------|---------------|--------------------------|-------------------------|--------------|----------|-------------|---------|--|
| IC2                       | 8-759-800-81  | IC LA7016                | <b>&lt;RESISTOR&gt;</b> |              |          |             |         |  |
| IC3                       | 8-759-246-15  | IC TL8608AP              | R1                      | 1-249-428-11 | CARBON   | 8.2K        | 5% 1/4W |  |
| IC4                       | *1-526-654-00 | SOCKET, IC (DP) 16P; IC3 | R2                      | 1-249-429-11 | CARBON   | 10K         | 5% 1/4W |  |
| IC4                       | 8-759-246-15  | IC TL8608AP              | R3                      | 1-249-422-11 | CARBON   | 2.7K        | 5% 1/4W |  |
| IC4                       | *1-526-654-00 | SOCKET, IC (DP) 16P; IC4 | R4                      | 1-215-425-00 | METAL    | 1.5K        | 1% 1/4W |  |
| IC5                       | 8-759-140-53  | IC UPD4053BC             | R5                      | 1-215-395-00 | METAL    | 82          | 1% 1/4W |  |
| IC6                       | 8-759-800-81  | IC LA7016                | <b>&lt;COIL&gt;</b>     |              |          |             |         |  |
| IC7                       | 8-759-145-58  | IC UPC4558C              | R6                      | 1-215-421-00 | METAL    | 1K          | 1% 1/4W |  |
| IC8                       | 8-759-145-58  | IC UPC4558C              | R7                      | 1-215-421-00 | METAL    | 1K          | 1% 1/4W |  |
|                           |               |                          | R8                      | 1-215-423-00 | METAL    | 1.2K        | 1% 1/4W |  |
|                           |               |                          | R9                      | 1-215-421-00 | METAL    | 1K          | 1% 1/4W |  |
|                           |               |                          | R10                     | 1-215-421-00 | METAL    | 1K          | 1% 1/4W |  |
| L1                        | 1-408-533-00  | COIL, VARIABLE           | R11                     | 1-215-391-00 | METAL    | 56          | 1% 1/4W |  |
| L2                        | 1-408-532-00  | COIL, VARIABLE           | R12                     | 1-215-427-00 | METAL    | 1.8K        | 1% 1/4W |  |
| L3                        | 9-910-999-31  | COIL (VARIABLE)          | R13                     | 1-249-425-11 | CARBON   | 4.7K        | 5% 1/4W |  |
| L4                        | 1-408-421-00  | INDUCTOR                 | R14                     | 1-249-429-11 | CARBON   | 10K         | 5% 1/4W |  |
| L5                        | 1-408-429-00  | INDUCTOR                 | R15                     | 1-249-429-11 | CARBON   | 10K         | 5% 1/4W |  |
| L6                        | 1-408-429-00  | INDUCTOR                 | R17                     | 1-249-433-11 | CARBON   | 22K         | 5% 1/4W |  |
| L8                        | 1-408-421-00  | INDUCTOR                 | R18                     | 1-215-425-00 | METAL    | 1.5K        | 1% 1/4W |  |
| L101                      | 1-408-421-00  | INDUCTOR                 | R19                     | 1-215-425-00 | METAL    | 1.5K        | 1% 1/4W |  |
| L102                      | 1-408-421-00  | INDUCTOR                 | R20                     | 1-215-425-00 | METAL    | 1.5K        | 1% 1/4W |  |
|                           |               |                          | R21                     | 1-215-425-00 | METAL    | 1.5K        | 1% 1/4W |  |
| <b>&lt;TRANSISTOR&gt;</b> |               |                          |                         |              |          |             |         |  |
| Q1                        | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R22                     | 1-249-405-11 | CARBON   | 100         | 5% 1/4W |  |
| Q2                        | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R23                     | 1-215-441-00 | METAL    | 6.8K        | 1% 1/4W |  |
| Q3                        | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R24                     | 1-215-469-00 | METAL    | 100K        | 1% 1/4W |  |
| Q4                        | 8-729-800-10  | TRANSISTOR 2SC3068       | R25                     | 1-249-427-11 | CARBON   | 6.8K        | 5% 1/4W |  |
| Q5                        | 8-729-800-10  | TRANSISTOR 2SC3068       | R26                     | 1-249-415-11 | CARBON   | 680         | 5% 1/4W |  |
| Q6                        | 8-729-384-48  | TRANSISTOR 2SA844-E      | R27                     | 1-249-415-11 | CARBON   | 680         | 5% 1/4W |  |
| Q7                        | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R28                     | 1-249-420-11 | CARBON   | 1.8K        | 5% 1/4W |  |
| Q8                        | 8-729-384-48  | TRANSISTOR 2SA844-E      | R29                     | 1-249-422-11 | CARBON   | 2.7K        | 5% 1/4W |  |
| Q9                        | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R30                     | 1-249-405-11 | CARBON   | 100         | 5% 1/4W |  |
| Q10                       | 8-729-119-76  | TRANSISTOR 2SA1175-HFE   | R31                     | 1-247-903-00 | CARBON   | 1M          | 5% 1/4W |  |
| Q11                       | 8-729-119-76  | TRANSISTOR 2SA1175-HFE   | R32                     | 1-249-429-11 | CARBON   | 10K         | 5% 1/4W |  |
| Q12                       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R34                     | 1-215-407-00 | METAL    | 270         | 1% 1/4W |  |
| Q13                       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R35                     | 1-215-407-00 | METAL    | 270         | 1% 1/4W |  |
| Q14                       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R36                     | 1-215-413-00 | METAL    | 470         | 1% 1/4W |  |
| Q15                       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R37                     | 1-215-443-00 | METAL    | 8.2K        | 1% 1/4W |  |
| Q16                       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R38                     | 1-249-441-11 | CARBON   | 100K        | 5% 1/4W |  |
| Q17                       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R39                     | 1-215-425-00 | METAL    | 1.5K        | 1% 1/4W |  |
| Q18                       | 8-729-600-19  | TRANSISTOR 2SK381-A      | R40                     | 1-215-421-00 | METAL    | 1K          | 1% 1/4W |  |
| Q20                       | 8-729-119-76  | TRANSISTOR 2SA1175-HFE   | R41                     | 1-215-429-00 | METAL    | 2.2K        | 1% 1/4W |  |
| Q21                       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R42                     | 1-215-445-00 | METAL    | 10K         | 1% 1/4W |  |
| Q22                       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R43                     | 1-215-421-00 | METAL    | 1K          | 1% 1/4W |  |
| Q23                       | 8-729-384-48  | TRANSISTOR 2SA844-E      | R44                     | 1-249-433-11 | CARBON   | 22K         | 5% 1/4W |  |
| Q24                       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R45                     | 1-249-429-11 | CARBON   | 10K         | 5% 1/4W |  |
| Q25                       | 8-729-800-10  | TRANSISTOR 2SC3068       | R46                     | 1-249-429-11 | CARBON   | 10K         | 5% 1/4W |  |
| Q26                       | 8-729-600-19  | TRANSISTOR 2SK381-A      | R47                     | 1-249-441-11 | CARBON   | 100K        | 5% 1/4W |  |
| Q28                       | 8-729-119-76  | TRANSISTOR 2SA1175-HFE   | R48                     | 1-249-425-11 | CARBON   | 4.7K        | 5% 1/4W |  |
| Q29                       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R54                     | 1-249-422-11 | CARBON   | 2.7K        | 5% 1/4W |  |
| Q30                       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R55                     | 1-215-418-00 | METAL    | 750         | 1% 1/4W |  |
| Q31                       | 8-729-384-48  | TRANSISTOR 2SA844-E      | R56                     | 1-215-420-00 | METAL    | 910         | 1% 1/4W |  |
| Q32                       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R57                     | 1-249-415-11 | CARBON   | 680         | 5% 1/4W |  |
| Q33                       | 8-729-800-10  | TRANSISTOR 2SC3068       | R58                     | 1-249-422-11 | CARBON   | 2.7K        | 5% 1/4W |  |
| Q34                       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R59                     | 1-249-422-11 | CARBON   | 2.7K        | 5% 1/4W |  |
| Q35                       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R60                     | 1-215-418-00 | METAL    | 750         | 1% 1/4W |  |
| Q36                       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R61                     | 1-215-420-00 | METAL    | 910         | 1% 1/4W |  |
| Q38                       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE   | R62                     | 1-249-415-11 | CARBON   | 680         | 5% 1/4W |  |
| Q101                      | 8-729-140-97  | TRANSISTOR 2SB734-34     | R63                     | 1-249-422-11 | CARBON   | 2.7K        | 5% 1/4W |  |
| Q102                      | 8-729-320-62  | TRANSISTOR 2SD789-34     | R64                     | 1-215-477-00 | METAL    | 220K        | 1% 1/4W |  |
| Q103                      | 8-729-900-63  | TRANSISTOR DTA124ES      | R65                     | 1-215-435-00 | METAL    | 3.9K        | 1% 1/4W |  |
| Q104                      | 8-729-900-63  | TRANSISTOR DTA124ES      | R66                     | 1-249-405-11 | CARBON   | 100         | 5% 1/4W |  |
|                           |               |                          | R70                     | 1-247-903-00 | CARBON   | 1M          | 5% 1/4W |  |
|                           |               |                          | R71                     | 1-249-429-11 | CARBON   | 10K         | 5% 1/4W |  |
|                           |               |                          | R72                     | 1-249-429-11 | CARBON   | 10K         | 5% 1/4W |  |



| REF.NO. | PART NO.     | DESCRIPTION | REMARK       | REF.NO. | PART NO.     | DESCRIPTION          | REMARK       |
|---------|--------------|-------------|--------------|---------|--------------|----------------------|--------------|
| R73     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R310    | 1-249-422-11 | CARBON               | 2.7K 5% 1/4W |
| R74     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R314    | 1-215-417-00 | METAL                | 680 1% 1/4W  |
| R75     | 1-249-427-11 | CARBON      | 6.8K 5% 1/4W | R315    | 1-249-422-11 | CARBON               | 2.7K 5% 1/4W |
| R76     | 1-249-427-11 | CARBON      | 6.8K 5% 1/4W | R316    | 1-249-413-11 | CARBON               | 470 5% 1/4W  |
| R77     | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W | R317    | 1-249-413-11 | CARBON               | 470 5% 1/4W  |
| R78     | 1-215-424-00 | METAL       | 1.3K 1% 1/4W | R320    | 1-215-472-00 | METAL                | 130K 1% 1/4W |
| R79     | 1-215-419-00 | METAL       | 820 1% 1/4W  | R353    | 1-249-432-11 | CARBON               | 18K 5% 1/4W  |
| R80     | 1-215-425-00 | METAL       | 1.5K 1% 1/4W | R354    | 1-249-432-11 | CARBON               | 18K 5% 1/4W  |
| R81     | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W | R400    | 1-215-429-00 | METAL                | 2.2K 1% 1/4W |
| R82     | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W |         |              |                      |              |
| R83     | 1-249-435-11 | CARBON      | 33K 5% 1/4W  |         |              |                      |              |
| R84     | 1-249-435-11 | CARBON      | 33K 5% 1/4W  |         |              |                      |              |
| R85     | 1-247-903-00 | CARBON      | 1M 5% 1/4W   |         |              |                      |              |
| R86     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | RV1     | 1-237-515-21 | RES, ADJ, CERMET 1K  |              |
| R87     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | RV2     | 1-237-499-21 | RES, ADJ, CERMET 500 |              |
| R88     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | RV3     | 1-237-501-21 | RES, ADJ, CERMET 2K  |              |
| R89     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | RV4     | 1-237-501-21 | RES, ADJ, CERMET 2K  |              |
| R90     | 1-249-427-11 | CARBON      | 6.8K 5% 1/4W | RV5     | 1-237-517-21 | RES, ADJ, CERMET 5K  |              |
| R91     | 1-249-427-11 | CARBON      | 6.8K 5% 1/4W | RV6     | 1-237-517-21 | RES, ADJ, CERMET 5K  |              |
| R92     | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W | RV7     | 1-237-504-21 | RES, ADJ, CERMET 20K |              |
| R93     | 1-215-424-00 | METAL       | 1.3K 1% 1/4W | RV8     | 1-237-504-21 | RES, ADJ, CERMET 20K |              |
| R94     | 1-215-419-00 | METAL       | 820 1% 1/4W  | RV9     | 1-237-517-21 | RES, ADJ, CERMET 5K  |              |
| R95     | 1-215-425-00 | METAL       | 1.5K 1% 1/4W | RV10    | 1-237-517-21 | RES, ADJ, CERMET 5K  |              |
| R96     | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |         |              |                      |              |
| R97     | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W |         |              |                      |              |
| R98     | 1-249-435-11 | CARBON      | 33K 5% 1/4W  | X1      | 1-567-504-11 | OSCILLATOR, CRYSTAL  |              |
| R99     | 1-249-435-11 | CARBON      | 33K 5% 1/4W  | X2      | 1-567-409-11 | VIBRATOR, CRYSTAL    |              |
| R100    | 1-215-438-00 | METAL       | 5.1K 1% 1/4W |         |              |                      |              |
| R101    | 1-215-438-00 | METAL       | 5.1K 1% 1/4W |         |              |                      |              |
| R102    | 1-215-438-00 | METAL       | 5.1K 1% 1/4W |         |              |                      |              |
| R103    | 1-215-438-00 | METAL       | 5.1K 1% 1/4W |         |              |                      |              |
| R104    | 1-249-437-11 | CARBON      | 47K 5% 1/4W  |         |              |                      |              |
| R105    | 1-249-438-11 | CARBON      | 56K 5% 1/4W  |         |              |                      |              |
| R106    | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |         |              |                      |              |
| R107    | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |         |              |                      |              |
| R108    | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |         |              |                      |              |
| R109    | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |         |              |                      |              |
| R110    | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |         |              |                      |              |
| R111    | 1-215-438-00 | METAL       | 5.1K 1% 1/4W |         |              |                      |              |
| R112    | 1-215-438-00 | METAL       | 5.1K 1% 1/4W |         |              |                      |              |
| R120    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |         |              |                      |              |
| R121    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |         |              |                      |              |
| R130    | 1-215-477-00 | METAL       | 220K 1% 1/4W |         |              |                      |              |
| R150    | 1-249-441-11 | CARBON      | 100K 5% 1/4W |         |              |                      |              |
| R201    | 1-249-423-11 | CARBON      | 3.3K 5% 1/4W |         |              |                      |              |
| R202    | 1-249-423-11 | CARBON      | 3.3K 5% 1/4W |         |              |                      |              |
| R203    | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |         |              |                      |              |
| R204    | 1-249-423-11 | CARBON      | 3.3K 5% 1/4W |         |              |                      |              |
| R220    | 1-249-441-11 | CARBON      | 100K 5% 1/4W |         |              |                      |              |
| R221    | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |         |              |                      |              |
| R222    | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |         |              |                      |              |
| R250    | 1-215-415-00 | METAL       | 560 1% 1/4W  |         |              |                      |              |
| R251    | 1-215-415-00 | METAL       | 560 1% 1/4W  |         |              |                      |              |
| R252    | 1-215-421-00 | METAL       | 1K 1% 1/4W   |         |              |                      |              |
| R254    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |         |              |                      |              |
| R255    | 1-249-441-11 | CARBON      | 100K 5% 1/4W |         |              |                      |              |
| R259    | 1-215-421-00 | METAL       | 1K 1% 1/4W   |         |              |                      |              |
| R301    | 1-215-469-00 | METAL       | 100K 1% 1/4W |         |              |                      |              |
| R302    | 1-215-491-00 | METAL       | 820K 1% 1/4W |         |              |                      |              |
| R303    | 1-249-418-11 | CARBON      | 1.2K 5% 1/4W |         |              |                      |              |
| R305    | 1-249-431-11 | CARBON      | 15K 5% 1/4W  |         |              |                      |              |
| R306    | 1-249-428-11 | CARBON      | 8.2K 5% 1/4W |         |              |                      |              |
| R307    | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |         |              |                      |              |
| R308    | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |         |              |                      |              |



| REF. NO.   | PART NO.     | DESCRIPTION            | REMARK       | REF. NO. | PART NO.     | DESCRIPTION | REMARK       |
|------------|--------------|------------------------|--------------|----------|--------------|-------------|--------------|
| Q36        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R29      | 1-215-418-00 | METAL       | 750 1% 1/4W  |
| Q37        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R30      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| Q38        | 8-729-600-19 | TRANSISTOR 2SK381-A    |              | R31      | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| Q39        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R32      | 1-249-420-11 | CARBON      | 1.8K 5% 1/4W |
| Q40        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R33      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
| Q41        | 8-729-384-48 | TRANSISTOR 2SA844-E    |              | R34      | 1-249-428-11 | CARBON      | 8.2K 5% 1/4W |
| Q42        | 8-729-384-48 | TRANSISTOR 2SA844-E    |              | R35      | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |
| Q43        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R36      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| Q44        | 8-729-384-48 | TRANSISTOR 2SA844-E    |              | R37      | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| Q45        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R40      | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W |
| Q49        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R41      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| Q50        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R42      | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |
| Q51        | 8-729-900-63 | TRANSISTOR DTA124ES    |              | R43      | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |
| Q52        | 8-729-900-63 | TRANSISTOR DTA124ES    |              | R44      | 1-249-431-11 | CARBON      | 15K 5% 1/4W  |
| Q53        | 8-729-900-63 | TRANSISTOR DTA124ES    |              | R45      | 1-249-423-11 | CARBON      | 3.3K 5% 1/4W |
| Q54        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R46      | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |
| Q55        | 8-729-600-19 | TRANSISTOR 2SK381-A    |              | R47      | 1-249-423-11 | CARBON      | 3.3K 5% 1/4W |
| Q56        | 8-729-900-63 | TRANSISTOR DTA124ES    |              | R48      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| Q57        | 8-729-900-63 | TRANSISTOR DTA124ES    |              | R49      | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| Q58        | 8-729-900-63 | TRANSISTOR DTA124ES    |              | R50      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| Q59        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R51      | 1-247-903-00 | CARBON      | 1M 5% 1/4W   |
| Q60        | 8-729-600-19 | TRANSISTOR 2SK381-A    |              | R52      | 1-247-866-11 | CARBON      | 30K 5% 1/4W  |
| Q71        | 8-729-384-48 | TRANSISTOR 2SA844-E    |              | R53      | 1-215-445-00 | METAL       | 10K 1% 1/4W  |
| Q72        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R54      | 1-249-420-11 | CARBON      | 1.8K 5% 1/4W |
| Q73        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R55      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| Q74        | 8-729-384-48 | TRANSISTOR 2SA844-E    |              | R56      | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| Q75        | 8-729-800-10 | TRANSISTOR 2SC3068     |              | R57      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| Q76        | 8-729-900-63 | TRANSISTOR DTA124ES    |              | R58      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| Q77        | 8-729-900-63 | TRANSISTOR DTA124ES    |              | R59      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| Q78        | 8-729-900-89 | TRANSISTOR DTC144ES    |              | R61      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| Q81        | 8-729-384-48 | TRANSISTOR 2SA844-E    |              | R62      | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |
| Q82        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R63      | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |
| Q83        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R64      | 1-249-431-11 | CARBON      | 15K 5% 1/4W  |
| Q84        | 8-729-384-48 | TRANSISTOR 2SA844-E    |              | R65      | 1-249-423-11 | CARBON      | 3.3K 5% 1/4W |
| Q85        | 8-729-800-10 | TRANSISTOR 2SC3068     |              | R66      | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |
| <RESISTOR> |              |                        |              |          |              |             |              |
| R1         | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R70      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| R2         | 1-215-396-00 | METAL                  | 91 1% 1/4W   | R71      | 1-247-903-00 | CARBON      | 1M 5% 1/4W   |
| R3         | 1-215-431-00 | METAL                  | 2.7K 1% 1/4W | R72      | 1-247-866-11 | CARBON      | 30K 5% 1/4W  |
| R4         | 1-249-419-11 | CARBON                 | 1.5K 5% 1/4W | R73      | 1-215-445-00 | METAL       | 10K 1% 1/4W  |
| R6         | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R74      | 1-249-420-11 | CARBON      | 1.8K 5% 1/4W |
| R7         | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R75      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| R8         | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  | R76      | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R10        | 1-247-830-11 | CARBON                 | 910 5% 1/4W  | R77      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| R11        | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   | R78      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| R12        | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   | R79      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| R13        | 1-215-462-00 | METAL                  | 51K 1% 1/4W  | R80      | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R14        | 1-249-426-11 | CARBON                 | 5.6K 5% 1/4W | R81      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| R15        | 1-247-903-00 | CARBON                 | 1M 5% 1/4W   | R82      | 1-247-903-00 | CARBON      | 1M 5% 1/4W   |
| R16        | 1-215-477-00 | METAL                  | 220K 1% 1/4W | R83      | 1-249-420-11 | CARBON      | 1.8K 5% 1/4W |
| R17        | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  | R84      | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R18        | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  | R85      | 1-247-866-11 | CARBON      | 30K 5% 1/4W  |
| R19        | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   | R86      | 1-215-445-00 | METAL       | 10K 1% 1/4W  |
| R20        | 1-215-421-00 | METAL                  | 1K 1% 1/4W   | R87      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| R21        | 1-215-421-00 | METAL                  | 1K 1% 1/4W   | R88      | 1-215-430-00 | METAL       | 2.4K 1% 1/4W |
| R22        | 1-249-441-11 | CARBON                 | 100K 5% 1/4W | R89      | 1-215-443-00 | METAL       | 8.2K 1% 1/4W |
| R23        | 1-215-409-00 | METAL                  | 330 1% 1/4W  | R90      | 1-249-430-11 | CARBON      | 12K 5% 1/4W  |
| R24        | 1-215-380-00 | METAL                  | 20 1% 1/4W   | R91      | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R25        | 1-215-380-00 | METAL                  | 20 1% 1/4W   | R92      | 1-247-830-11 | CARBON      | 910 5% 1/4W  |
| R26        | 1-215-409-00 | METAL                  | 330 1% 1/4W  | R93      | 1-215-421-00 | METAL       | 1K 1% 1/4W   |
| R27        | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  | R94      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| R28        | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   | R98      | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |



| REF.NO.             | PART NO.     | DESCRIPTION           | REMARK       | REF.NO. | PART NO.     | DESCRIPTION         | REMARK          |
|---------------------|--------------|-----------------------|--------------|---------|--------------|---------------------|-----------------|
| R99                 | 1-249-422-11 | CARBON                | 2.7K 5% 1/4W | RV21    | 1-237-517-21 | RES, ADJ, CERMET 5K |                 |
| R101                | 1-249-432-11 | CARBON                | 18K 5% 1/4W  | RV22    | 1-237-517-21 | RES, ADJ, CERMET 5K |                 |
| R102                | 1-249-421-11 | CARBON                | 2.2K 5% 1/4W |         |              |                     |                 |
| R103                | 1-249-421-11 | CARBON                | 2.2K 5% 1/4W |         |              |                     |                 |
| R104                | 1-249-421-11 | CARBON                | 2.2K 5% 1/4W |         |              |                     |                 |
| R105                | 1-249-433-11 | CARBON                | 22K 5% 1/4W  | S1      | 1-570-857-11 | SWITCH, SLIDE       |                 |
| R106                | 1-249-429-11 | CARBON                | 10K 5% 1/4W  |         |              |                     |                 |
| R107                | 1-249-429-11 | CARBON                | 10K 5% 1/4W  |         |              |                     |                 |
| R108                | 1-249-405-11 | CARBON                | 100 5% 1/4W  |         |              |                     |                 |
| R109                | 1-249-422-11 | CARBON                | 2.7K 5% 1/4W |         |              |                     |                 |
| R110                | 1-249-405-11 | CARBON                | 100 5% 1/4W  |         |              |                     |                 |
| R111                | 1-249-435-11 | CARBON                | 33K 5% 1/4W  |         |              |                     |                 |
| R112                | 1-249-421-11 | CARBON                | 2.2K 5% 1/4W |         |              |                     |                 |
| R113                | 1-249-421-11 | CARBON                | 2.2K 5% 1/4W |         |              |                     |                 |
| R114                | 1-249-421-11 | CARBON                | 2.2K 5% 1/4W |         |              |                     |                 |
| R115                | 1-249-433-11 | CARBON                | 22K 5% 1/4W  | C1      | 1-124-034-51 | ELECT               | 33MF 20% 16V    |
| R116                | 1-249-429-11 | CARBON                | 10K 5% 1/4W  | C2      | 1-124-034-51 | ELECT               | 33MF 20% 16V    |
| R117                | 1-249-429-11 | CARBON                | 10K 5% 1/4W  | C3      | 1-124-034-51 | ELECT               | 33MF 20% 16V    |
| R118                | 1-249-405-11 | CARBON                | 100 5% 1/4W  | C4      | 1-124-034-51 | ELECT               | 33MF 20% 16V    |
| R119                | 1-249-422-11 | CARBON                | 2.7K 5% 1/4W | C5      | 1-124-034-51 | ELECT               | 33MF 20% 16V    |
| R120                | 1-249-405-11 | CARBON                | 100 5% 1/4W  | C6      | 1-124-034-51 | ELECT               | 33MF 20% 16V    |
| R161                | 1-215-438-00 | METAL                 | 5.1K 1% 1/4W | C7      | 1-124-034-51 | ELECT               | 33MF 20% 16V    |
| R162                | 1-249-431-11 | CARBON                | 15K 5% 1/4W  | C8      | 1-124-034-51 | ELECT               | 33MF 20% 16V    |
| R163                | 1-249-417-11 | CARBON                | 1K 5% 1/4W   | C9      | 1-124-034-51 | ELECT               | 33MF 20% 16V    |
| R164                | 1-215-435-00 | METAL                 | 3.9K 1% 1/4W | C10     | 1-124-034-51 | ELECT               | 33MF 20% 16V    |
| R165                | 1-249-422-11 | CARBON                | 2.7K 5% 1/4W | C11     | 1-124-034-51 | ELECT               | 33MF 20% 16V    |
| R166                | 1-249-422-11 | CARBON                | 2.7K 5% 1/4W | C12     | 1-124-034-51 | ELECT               | 33MF 20% 16V    |
| R167                | 1-215-413-00 | METAL                 | 470 1% 1/4W  | C13     | 1-124-034-51 | ELECT               | 33MF 20% 16V    |
| R168                | 1-215-416-00 | METAL                 | 620 1% 1/4W  | C14     | 1-124-034-51 | ELECT               | 33MF 20% 16V    |
| R169                | 1-215-432-00 | METAL                 | 3K 1% 1/4W   | C15     | 1-101-004-00 | CERAMIC             | 0.01MF 50V      |
| R170                | 1-249-425-11 | CARBON                | 4.7K 5% 1/4W | C16     | 1-101-004-00 | CERAMIC             | 0.01MF 50V      |
| R171                | 1-215-436-00 | METAL                 | 4.3K 1% 1/4W | C17     | 1-101-004-00 | CERAMIC             | 0.01MF 50V      |
| R172                | 1-249-431-11 | CARBON                | 15K 5% 1/4W  | C18     | 1-101-004-00 | CERAMIC             | 0.01MF 50V      |
| R173                | 1-249-417-11 | CARBON                | 1K 5% 1/4W   | C20     | 1-123-382-00 | ELECT               | 3.3MF 20% 50V   |
| R174                | 1-215-435-00 | METAL                 | 3.9K 1% 1/4W | C21     | 1-124-915-11 | ELECT               | 10MF 20% 16V    |
| R175                | 1-249-422-11 | CARBON                | 2.7K 5% 1/4W | C22     | 1-124-915-11 | ELECT               | 10MF 20% 16V    |
| R176                | 1-249-422-11 | CARBON                | 2.7K 5% 1/4W | C23     | 1-124-915-11 | ELECT               | 10MF 20% 16V    |
| R177                | 1-215-413-00 | METAL                 | 470 1% 1/4W  | C24     | 1-124-915-11 | ELECT               | 10MF 20% 16V    |
| R178                | 1-215-418-00 | METAL                 | 750 1% 1/4W  | C26     | 1-101-004-00 | CERAMIC             | 0.01MF 50V      |
| R179                | 1-215-425-00 | METAL                 | 1.5K 1% 1/4W | C41     | 1-124-122-11 | ELECT               | 100MF 20% 16V   |
| R180                | 1-249-425-11 | CARBON                | 4.7K 5% 1/4W | C42     | 1-124-915-11 | ELECT               | 10MF 20% 16V    |
| R181                | 1-215-384-00 | METAL                 | 30 1% 1/4W   | C43     | 1-124-915-11 | ELECT               | 10MF 20% 16V    |
| R182                | 1-215-384-00 | METAL                 | 30 1% 1/4W   | C44     | 1-124-915-11 | ELECT               | 10MF 20% 16V    |
| R183                | 1-249-433-11 | CARBON                | 22K 5% 1/4W  | C45     | 1-124-915-11 | ELECT               | 10MF 20% 16V    |
| R184                | 1-249-425-11 | CARBON                | 4.7K 5% 1/4W | C50     | 1-124-915-11 | ELECT               | 10MF 20% 16V    |
| R185                | 1-249-429-11 | CARBON                | 10K 5% 1/4W  | C51     | 1-101-004-00 | CERAMIC             | 0.01MF 50V      |
| R201                | 1-249-437-11 | CARBON                | 47K 5% 1/4W  | C52     | 1-101-004-00 | CERAMIC             | 0.01MF 50V      |
| R202                | 1-249-429-11 | CARBON                | 10K 5% 1/4W  | C53     | 1-101-004-00 | CERAMIC             | 0.01MF 50V      |
| R203                | 1-249-435-11 | CARBON                | 33K 5% 1/4W  | C54     | 1-101-004-00 | CERAMIC             | 0.01MF 50V      |
| R204                | 1-247-872-11 | CARBON                | 51K 5% 1/4W  | C55     | 1-101-004-00 | CERAMIC             | 0.01MF 50V      |
| <VARIABLE RESISTOR> |              |                       |              |         |              |                     |                 |
| RV1                 | 1-237-514-21 | RES, ADJ, CERMET 500  |              | C71     | 1-124-122-11 | ELECT               | 100MF 20% 16V   |
| RV2                 | 1-237-508-21 | RES, ADJ, CERMET 500K |              | C72     | 1-124-915-11 | ELECT               | 10MF 20% 16V    |
| RV3                 | 1-237-498-21 | RES, ADJ, CERMET 200  |              | C73     | 1-124-915-11 | ELECT               | 10MF 20% 16V    |
| RV4                 | 1-237-500-21 | RES, ADJ, CERMET 1K   |              | C74     | 1-124-915-11 | ELECT               | 10MF 20% 16V    |
| RV5                 | 1-237-500-21 | RES, ADJ, CERMET 1K   |              | C80     | 1-124-915-11 | ELECT               | 10MF 20% 16V    |
| RV11                | 1-237-519-21 | RES, ADJ, CERMET 20K  |              | C81     | 1-101-004-00 | CERAMIC             | 0.01MF 50V      |
| RV12                | 1-237-519-21 | RES, ADJ, CERMET 20K  |              | C82     | 1-101-004-00 | CERAMIC             | 0.01MF 50V      |
| RV13                | 1-237-519-21 | RES, ADJ, CERMET 20K  |              | C83     | 1-101-004-00 | CERAMIC             | 0.01MF 50V      |
| RV14                | 1-237-519-21 | RES, ADJ, CERMET 20K  |              | C84     | 1-101-004-00 | CERAMIC             | 0.01MF 50V      |
| RV15                | 1-237-519-21 | RES, ADJ, CERMET 20K  |              | C85     | 1-101-004-00 | CERAMIC             | 0.01MF 50V      |
| RV16                | 1-237-519-21 | RES, ADJ, CERMET 20K  |              | C86     | 1-101-004-00 | CERAMIC             | 0.01MF 50V      |
|                     |              |                       |              | C101    | 1-161-021-11 | CERAMIC             | 0.047MF 10% 25V |
|                     |              |                       |              | C102    | 1-102-942-00 | CERAMIC             | 5PF 0.5PF 50V   |
|                     |              |                       |              | C103    | 1-102-959-00 | CERAMIC             | 22PF 5% 50V     |

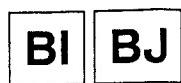


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| REF. NO.   | PART NO.     | DESCRIPTION            | REMARK       | REF. NO.            | PART NO.     | DESCRIPTION          | REMARK          |  |  |  |  |
|------------|--------------|------------------------|--------------|---------------------|--------------|----------------------|-----------------|--|--|--|--|
| Q107       | 8-729-600-19 | TRANSISTOR 2SK381-A    |              | R112                | 1-249-419-11 | CARBON               | 1.5K 5% 1/4W    |  |  |  |  |
| Q108       | 8-729-600-19 | TRANSISTOR 2SK381-A    |              | R113                | 1-249-405-11 | CARBON               | 100 5% 1/4W     |  |  |  |  |
| Q201       | 8-729-600-19 | TRANSISTOR 2SK381-A    |              | R114                | 1-215-445-00 | METAL                | 10K 1% 1/4W     |  |  |  |  |
| Q202       | 8-729-384-48 | TRANSISTOR 2SA844-E    |              | R115                | 1-215-445-00 | METAL                | 10K 1% 1/4W     |  |  |  |  |
| Q203       | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R116                | 1-249-429-11 | CARBON               | 10K 5% 1/4W     |  |  |  |  |
| Q204       | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R117                | 1-215-493-00 | METAL                | 1M 1% 1/4W      |  |  |  |  |
| Q205       | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R120                | 1-215-451-00 | METAL                | 18K 1% 1/4W     |  |  |  |  |
| Q206       | 8-729-600-19 | TRANSISTOR 2SK381-A    |              | R121                | 1-215-453-00 | METAL                | 22K 1% 1/4W     |  |  |  |  |
| Q207       | 8-729-600-19 | TRANSISTOR 2SK381-A    |              | R201                | 1-247-903-00 | CARBON               | 1M 5% 1/4W      |  |  |  |  |
| Q208       | 8-729-600-19 | TRANSISTOR 2SK381-A    |              | R202                | 1-249-431-11 | CARBON               | 15K 5% 1/4W     |  |  |  |  |
| Q301       | 8-729-600-19 | TRANSISTOR 2SK381-A    |              | R203                | 1-249-419-11 | CARBON               | 1.5K 5% 1/4W    |  |  |  |  |
| Q302       | 8-729-384-48 | TRANSISTOR 2SA844-E    |              | R204                | 1-249-430-11 | CARBON               | 12K 5% 1/4W     |  |  |  |  |
| Q303       | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R205                | 1-249-409-11 | CARBON               | 220 5% 1/4W     |  |  |  |  |
| Q304       | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R206                | 1-249-419-11 | CARBON               | 1.5K 5% 1/4W    |  |  |  |  |
| Q305       | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R207                | 1-215-425-00 | METAL                | 1.5K 1% 1/4W    |  |  |  |  |
| Q306       | 8-729-600-19 | TRANSISTOR 2SK381-A    |              | R208                | 1-249-415-11 | CARBON               | 680 5% 1/4W     |  |  |  |  |
| Q307       | 8-729-600-19 | TRANSISTOR 2SK381-A    |              | R209                | 1-249-419-11 | CARBON               | 1.5K 5% 1/4W    |  |  |  |  |
| Q308       | 8-729-600-19 | TRANSISTOR 2SK381-A    |              | R210                | 1-215-427-00 | METAL                | 1.8K 1% 1/4W    |  |  |  |  |
| <RESISTOR> |              |                        |              |                     |              |                      |                 |  |  |  |  |
| R1         | 1-249-433-11 | CARBON                 | 22K 5% 1/4W  | R211                | 1-215-453-00 | METAL                | 22K 1% 1/4W     |  |  |  |  |
| R3         | 1-249-427-11 | CARBON                 | 6.8K 5% 1/4W | R212                | 1-249-419-11 | CARBON               | 1.5K 5% 1/4W    |  |  |  |  |
| R5         | 1-249-422-11 | CARBON                 | 2.7K 5% 1/4W | R213                | 1-249-405-11 | CARBON               | 100 5% 1/4W     |  |  |  |  |
| R6         | 1-249-433-11 | CARBON                 | 22K 5% 1/4W  | R214                | 1-215-445-00 | METAL                | 10K 1% 1/4W     |  |  |  |  |
| R7         | 1-249-433-11 | CARBON                 | 22K 5% 1/4W  | R215                | 1-215-445-00 | METAL                | 10K 1% 1/4W     |  |  |  |  |
| R9         | 1-249-427-11 | CARBON                 | 6.8K 5% 1/4W | R216                | 1-249-429-11 | CARBON               | 10K 5% 1/4W     |  |  |  |  |
| R11        | 1-249-422-11 | CARBON                 | 2.7K 5% 1/4W | R217                | 1-215-455-00 | METAL                | 27K 1% 1/4W     |  |  |  |  |
| R12        | 1-249-433-11 | CARBON                 | 22K 5% 1/4W  | R301                | 1-247-903-00 | CARBON               | 1M 5% 1/4W      |  |  |  |  |
| R13        | 1-249-433-11 | CARBON                 | 22K 5% 1/4W  | R302                | 1-249-431-11 | CARBON               | 15K 5% 1/4W     |  |  |  |  |
| R15        | 1-249-427-11 | CARBON                 | 6.8K 5% 1/4W | R303                | 1-249-419-11 | CARBON               | 1.5K 5% 1/4W    |  |  |  |  |
| R17        | 1-249-422-11 | CARBON                 | 2.7K 5% 1/4W | R304                | 1-249-430-11 | CARBON               | 12K 5% 1/4W     |  |  |  |  |
| R18        | 1-249-433-11 | CARBON                 | 22K 5% 1/4W  | R305                | 1-249-409-11 | CARBON               | 220 5% 1/4W     |  |  |  |  |
| R19        | 1-249-433-11 | CARBON                 | 22K 5% 1/4W  | R306                | 1-249-419-11 | CARBON               | 1.5K 5% 1/4W    |  |  |  |  |
| R21        | 1-249-427-11 | CARBON                 | 6.8K 5% 1/4W | R307                | 1-215-425-00 | METAL                | 1.5K 1% 1/4W    |  |  |  |  |
| R23        | 1-249-422-11 | CARBON                 | 2.7K 5% 1/4W | R308                | 1-249-415-11 | CARBON               | 680 5% 1/4W     |  |  |  |  |
| R31        | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R309                | 1-249-419-11 | CARBON               | 1.5K 5% 1/4W    |  |  |  |  |
| R32        | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R310                | 1-215-427-00 | METAL                | 1.8K 1% 1/4W    |  |  |  |  |
| R33        | 1-249-433-11 | CARBON                 | 22K 5% 1/4W  | R311                | 1-215-453-00 | METAL                | 22K 1% 1/4W     |  |  |  |  |
| R34        | 1-249-422-11 | CARBON                 | 2.7K 5% 1/4W | R312                | 1-249-419-11 | CARBON               | 1.5K 5% 1/4W    |  |  |  |  |
| R35        | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R313                | 1-249-405-11 | CARBON               | 100 5% 1/4W     |  |  |  |  |
| R36        | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R314                | 1-215-445-00 | METAL                | 10K 1% 1/4W     |  |  |  |  |
| R37        | 1-249-433-11 | CARBON                 | 22K 5% 1/4W  | R315                | 1-215-445-00 | METAL                | 10K 1% 1/4W     |  |  |  |  |
| R38        | 1-249-422-11 | CARBON                 | 2.7K 5% 1/4W | R316                | 1-249-429-11 | CARBON               | 10K 5% 1/4W     |  |  |  |  |
| R39        | 1-249-433-11 | CARBON                 | 22K 5% 1/4W  | <VARIABLE RESISTOR> |              |                      |                 |  |  |  |  |
| R40        | 1-249-422-11 | CARBON                 | 2.7K 5% 1/4W | RV1                 | 1-237-505-21 | RES, ADJ, CERMET 50K |                 |  |  |  |  |
| R52        | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   | RV2                 | 1-237-505-21 | RES, ADJ, CERMET 50K |                 |  |  |  |  |
| R53        | 1-249-425-11 | CARBON                 | 4.7K 5% 1/4W | RV3                 | 1-237-505-21 | RES, ADJ, CERMET 50K |                 |  |  |  |  |
| R54        | 1-249-441-11 | CARBON                 | 100K 5% 1/4W | <SWITCH>            |              |                      |                 |  |  |  |  |
| R63        | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   | S1                  | 1-570-857-11 | SWITCH, SLIDE        |                 |  |  |  |  |
| R64        | 1-249-437-11 | CARBON                 | 47K 5% 1/4W  | S2                  | 1-570-851-11 | SWITCH, SLIDE        |                 |  |  |  |  |
| R65        | 1-249-433-11 | CARBON                 | 22K 5% 1/4W  | *****               |              |                      |                 |  |  |  |  |
| R66        | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   | R101                | 1-247-903-00 | CARBON               | 1M 5% 1/4W      |  |  |  |  |
| R101       | 1-247-903-00 | CARBON                 | 1M 5% 1/4W   | R102                | 1-249-431-11 | CARBON               | 15K 5% 1/4W     |  |  |  |  |
| R103       | 1-249-419-11 | CARBON                 | 1.5K 5% 1/4W | R104                | 1-249-430-11 | CARBON               | 12K 5% 1/4W     |  |  |  |  |
| R104       | 1-249-430-11 | CARBON                 | 12K 5% 1/4W  | R105                | 1-249-409-11 | CARBON               | 220 5% 1/4W     |  |  |  |  |
| R105       | 1-249-409-11 | CARBON                 | 220 5% 1/4W  | R106                | 1-249-419-11 | CARBON               | 1.5K 5% 1/4W    |  |  |  |  |
| R106       | 1-249-419-11 | CARBON                 | 1.5K 5% 1/4W | R107                | 1-215-425-00 | METAL                | 1.5K 1% 1/4W    |  |  |  |  |
| R107       | 1-215-425-00 | METAL                  | 1.5K 1% 1/4W | R108                | 1-249-415-11 | CARBON               | 680 5% 1/4W     |  |  |  |  |
| R108       | 1-249-415-11 | CARBON                 | 680 5% 1/4W  | <CAPACITOR>         |              |                      |                 |  |  |  |  |
| R109       | 1-249-419-11 | CARBON                 | 1.5K 5% 1/4W | C1                  | 1-130-481-00 | MYLAR                | 0.0068MF 5% 50V |  |  |  |  |
| R110       | 1-215-427-00 | METAL                  | 1.8K 1% 1/4W | C2                  | 1-136-165-00 | FILM                 | 0.1MF 5% 50V    |  |  |  |  |
| R111       | 1-215-453-00 | METAL                  | 22K 1% 1/4W  | C3                  | 1-123-369-00 | ELECT                | 4.7MF 20% 25V   |  |  |  |  |

| REF. NO. | PART NO.     | DESCRIPTION |         | REMARK | REF. NO. | PART NO.                    | DESCRIPTION  |                           | REMARK  |        |      |
|----------|--------------|-------------|---------|--------|----------|-----------------------------|--------------|---------------------------|---------|--------|------|
| C4       | 1-123-369-00 | ELECT       | 4.7MF   | 20%    | 25V      | C210                        | 1-136-161-00 | FILM                      | 0.047MF | 5%     | 50V  |
| C5       | 1-102-973-00 | CBRAMIC     | 100PF   | 5%     | 50V      | C214                        | 1-102-951-00 | CERAMIC                   | 15PF    | 5%     | 50V  |
| C7       | 1-126-233-11 | ELECT       | 22MF    | 20%    | 25V      | C215                        | 1-136-153-00 | FILM                      | 0.01MF  | 5%     | 50V  |
| C8       | 1-123-369-00 | ELECT       | 4.7MF   | 20%    | 25V      | C216                        | 1-102-973-00 | CBRAMIC                   | 100PF   | 5%     | 50V  |
| C11      | 1-124-915-11 | ELECT       | 10MF    | 20%    | 16V      | C217                        | 1-101-004-00 | CERAMIC                   | 0.01MF  | 50V    |      |
| C12      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C218                        | 1-101-004-00 | CERAMIC                   | 0.01MF  |        | 50V  |
| C13      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C219                        | 1-102-953-00 | CERAMIC                   | 18PF    | 5%     | 50V  |
| C14      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C220                        | 1-102-038-00 | CERAMIC                   | 0.001MF |        | 500V |
| C15      | 1-126-233-11 | ELECT       | 22MF    | 20%    | 16V      | C222                        | 1-102-943-00 | CERAMIC                   | 6PF     | 0.5PF  | 50V  |
| C16      | 1-124-915-11 | ELECT       | 10MF    | 20%    | 16V      | C301                        | 1-101-004-00 | CERAMIC                   | 0.01MF  | 50V    |      |
| C17      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C302                        | 1-124-791-11 | ELECT                     | 1MF     | 20%    | 50V  |
| C18      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C304                        | 1-124-915-11 | ELECT                     | 10MF    | 20%    | 16V  |
| C19      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C305                        | 1-101-004-00 | CERAMIC                   | 0.01MF  | 50V    |      |
| C41      | 1-124-034-51 | ELECT       | 33MF    | 20%    | 16V      | C306                        | 1-136-161-00 | FILM                      | 0.047MF | 5%     | 50V  |
| C42      | 1-124-034-51 | ELECT       | 33MF    | 20%    | 16V      | C307                        | 1-102-937-00 | CBRAMIC                   | 4PF     | 0.25PF | 50V  |
| C43      | 1-124-034-51 | ELECT       | 33MF    | 20%    | 16V      | C308                        | 1-101-880-00 | CERAMIC                   | 47PF    | 5%     | 50V  |
| C44      | 1-124-034-51 | ELECT       | 33MF    | 20%    | 16V      | C309                        | 1-136-161-00 | FILM                      | 0.047MF | 5%     | 50V  |
| C45      | 1-124-034-51 | ELECT       | 33MF    | 20%    | 16V      | C310                        | 1-136-161-00 | FILM                      | 0.047MF | 5%     | 50V  |
| C46      | 1-124-034-51 | ELECT       | 33MF    | 20%    | 16V      | C314                        | 1-102-951-00 | CERAMIC                   | 15PF    | 5%     | 50V  |
| C51      | 1-101-004-00 | CBRAMIC     | 0.01MF  |        | 50V      | C315                        | 1-136-153-00 | FILM                      | 0.01MF  | 5%     | 50V  |
| C52      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C316                        | 1-102-973-00 | CBRAMIC                   | 100PF   | 5%     | 50V  |
| C53      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C317                        | 1-101-004-00 | CERAMIC                   | 0.01MF  |        | 50V  |
| C54      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C318                        | 1-101-004-00 | CERAMIC                   | 0.01MF  |        | 50V  |
| C55      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C319                        | 1-102-953-00 | CERAMIC                   | 18PF    | 5%     | 50V  |
| C56      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C320                        | 1-102-038-00 | CBRAMIC                   | 0.001MF |        | 500V |
| C57      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | C322                        | 1-102-943-00 | CERAMIC                   | 6PF     | 0.5PF  | 50V  |
| C71      | 1-124-034-51 | ELECT       | 33MF    | 20%    | 16V      | <COMPOSITION CIRCUIT BLOCK> |              |                           |         |        |      |
| C72      | 1-124-034-51 | ELECT       | 33MF    | 20%    | 16V      | CP3                         | 1-231-765-00 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C73      | 1-124-034-51 | ELECT       | 33MF    | 20%    | 16V      | CP4                         | 1-231-765-00 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C74      | 1-124-034-51 | ELECT       | 33MF    | 20%    | 16V      | CP5                         | 1-231-765-00 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C75      | 1-124-034-51 | ELECT       | 33MF    | 20%    | 16V      | CP6                         | 1-231-765-00 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C76      | 1-124-034-51 | ELECT       | 33MF    | 20%    | 16V      | CP7                         | 1-231-765-00 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C81      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | CP101                       | 1-233-012-11 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C82      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | CP102                       | 1-233-012-11 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C83      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | CP103                       | 1-233-012-11 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C84      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | CP104                       | 1-232-726-11 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C85      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | CP201                       | 1-233-012-11 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C86      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | CP202                       | 1-233-012-11 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C87      | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | CP203                       | 1-233-012-11 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C101     | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | CP204                       | 1-232-726-11 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C102     | 1-124-791-11 | ELECT       | 1MF     | 20%    | 50V      | CP301                       | 1-233-012-11 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C104     | 1-124-915-11 | ELECT       | 10MF    | 20%    | 16V      | CP302                       | 1-233-012-11 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C105     | 1-101-004-00 | CBRAMIC     | 0.01MF  |        | 50V      | CP303                       | 1-233-012-11 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C106     | 1-136-161-00 | FILM        | 0.047MF | 5%     | 50V      | CP304                       | 1-232-726-11 | COMPOSITION CIRCUIT BLOCK |         |        |      |
| C107     | 1-102-937-00 | CERAMIC     | 4PF     | 0.25PF | 50V      | <DIODE>                     |              |                           |         |        |      |
| C108     | 1-101-880-00 | CBRAMIC     | 47PF    | 5%     | 50V      | D1                          | 8-719-911-19 | DIODE ISS119              |         |        |      |
| C109     | 1-136-161-00 | FILM        | 0.047MF | 5%     | 50V      | D2                          | 8-719-911-19 | DIODE ISS119              |         |        |      |
| C110     | 1-136-161-00 | FILM        | 0.047MF | 5%     | 50V      | D4                          | 8-719-911-19 | DIODE ISS119              |         |        |      |
| C114     | 1-102-951-00 | CERAMIC     | 15PF    | 5%     | 50V      | D5                          | 8-719-911-19 | DIODE ISS119              |         |        |      |
| C115     | 1-136-153-00 | FILM        | 0.01MF  | 5%     | 50V      | D6                          | 8-719-110-31 | DIODE RD12ESB2            |         |        |      |
| C116     | 1-102-973-00 | CERAMIC     | 100PF   | 5%     | 50V      | D7                          | 8-719-911-19 | DIODE ISS119              |         |        |      |
| C117     | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | D8                          | 8-719-911-19 | DIODE ISS119              |         |        |      |
| C118     | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | D101                        | 8-719-911-19 | DIODE ISS119              |         |        |      |
| C119     | 1-102-953-00 | CERAMIC     | 18PF    | 5%     | 50V      | D102                        | 8-719-016-42 | DIODE MC932               |         |        |      |
| C120     | 1-102-038-00 | CERAMIC     | 0.001MF |        | 500V     | D103                        | 8-719-109-74 | DIODE RD4.3ESB1           |         |        |      |
| C122     | 1-102-943-00 | CERAMIC     | 6PF     | 0.5PF  | 50V      | D104                        | 8-719-911-19 | DIODE ISS119              |         |        |      |
| C201     | 1-101-004-00 | CERAMIC     | 0.01MF  |        | 50V      | D105                        | 8-719-109-93 | DIODE RD6.2ESB2           |         |        |      |
| C202     | 1-124-791-11 | ELECT       | 1MF     | 20%    | 50V      | D201                        | 8-719-911-19 | DIODE ISS119              |         |        |      |
| C204     | 1-124-915-11 | ELECT       | 10MF    | 20%    | 16V      | D202                        | 8-719-016-42 | DIODE MC932               |         |        |      |
| C205     | 1-101-004-00 | CBRAMIC     | 0.01MF  |        | 50V      | D203                        | 8-719-109-74 | DIODE RD4.3ESB1           |         |        |      |
| C206     | 1-136-161-00 | FILM        | 0.047MF | 5%     | 50V      |                             |              |                           |         |        |      |
| C207     | 1-102-937-00 | CERAMIC     | 4PF     | 0.25PF | 50V      |                             |              |                           |         |        |      |
| C208     | 1-101-880-00 | CERAMIC     | 47PF    | 5%     | 50V      |                             |              |                           |         |        |      |
| C209     | 1-136-161-00 | FILM        | 0.047MF | 5%     | 50V      |                             |              |                           |         |        |      |

| REF.NO.      | PART NO.     | DESCRIPTION            | REMARK | REF.NO. | PART NO.     | DESCRIPTION          | REMARK       |
|--------------|--------------|------------------------|--------|---------|--------------|----------------------|--------------|
| D204         | 8-719-911-19 | DIODE ISS119           |        | Q307    | 8-729-266-82 | TRANSISTOR 2SC2668-0 |              |
| D205         | 8-719-109-93 | DIODE RD6.2ESB2        |        | Q308    | 8-729-384-48 | TRANSISTOR 2SA844-E  |              |
| D301         | 8-719-911-19 | DIODE ISS119           |        | Q309    | 8-729-600-19 | TRANSISTOR 2SK381-A  |              |
| D302         | 8-719-016-42 | DIODE MC932            |        | Q310    | 8-729-600-19 | TRANSISTOR 2SK381-A  |              |
| D303         | 8-719-109-74 | DIODE RD4.3ESB1        |        | Q313    | 8-729-600-19 | TRANSISTOR 2SK381-A  |              |
| D304         | 8-719-911-19 | DIODE ISS119           |        | Q314    | 8-729-200-17 | TRANSISTOR 2SA1091-0 |              |
| D305         | 8-719-109-93 | DIODE RD6.2ESB2        |        |         |              |                      |              |
| <IC>         |              |                        |        |         |              |                      |              |
| IC1          | 8-759-145-58 | IC UPC4558C            |        | R1      | 1-247-903-00 | CARBON               | 1M 5% 1/4W   |
| IC101        | 8-759-140-53 | IC UPD4053BC           |        | R2      | 1-249-429-11 | CARBON               | 10K 5% 1/4W  |
| IC102        | 8-766-001-49 | TRANSISTOR TX-429M     |        | R3      | 1-215-493-00 | METAL                | 1M 1% 1/4W   |
| IC103        | 8-759-990-82 | IC TL082CP             |        | R4      | 1-215-469-00 | METAL                | 100K 1% 1/4W |
| IC104        | 8-759-990-82 | IC TL082CP             |        | R5      | 1-249-435-11 | CARBON               | 33K 5% 1/4W  |
| IC105        | 8-759-990-82 | IC TL082CP             |        | R8      | 1-249-441-11 | CARBON               | 100K 5% 1/4W |
| IC201        | 8-759-140-53 | IC UPD4053BC           |        | R9      | 1-249-424-11 | CARBON               | 3.9K 5% 1/4W |
| IC202        | 8-766-001-49 | TRANSISTOR TX-429M     |        | R10     | 1-249-425-11 | CARBON               | 4.7K 5% 1/4W |
| IC203        | 8-759-990-82 | IC TL082CP             |        | R11     | 1-249-435-11 | CARBON               | 33K 5% 1/4W  |
| IC204        | 8-759-990-82 | IC TL082CP             |        | R12     | 1-249-429-11 | CARBON               | 10K 5% 1/4W  |
| IC205        | 8-759-990-82 | IC TL082CP             |        | R13     | 1-249-425-11 | CARBON               | 4.7K 5% 1/4W |
| IC301        | 8-759-140-53 | IC UPD4053BC           |        | R14     | 1-249-435-11 | CARBON               | 33K 5% 1/4W  |
| IC302        | 8-766-001-49 | TRANSISTOR TX-429M     |        | R15     | 1-249-429-11 | CARBON               | 10K 5% 1/4W  |
| IC303        | 8-759-990-82 | IC TL082CP             |        | R23     | 1-249-417-11 | CARBON               | 1K 5% 1/4W   |
| IC304        | 8-759-990-82 | IC TL082CP             |        | R24     | 1-249-417-11 | CARBON               | 1K 5% 1/4W   |
| IC305        | 8-759-990-82 | IC TL082CP             |        | R25     | 1-249-417-11 | CARBON               | 1K 5% 1/4W   |
| <TRANSISTOR> |              |                        |        |         |              |                      |              |
| Q1           | 8-729-900-74 | TRANSISTOR DTC143TS    |        | R31     | 1-249-430-11 | CARBON               | 12K 5% 1/4W  |
| Q2           | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        | R32     | 1-249-436-11 | CARBON               | 39K 5% 1/4W  |
| Q3           | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        | R33     | 1-249-430-11 | CARBON               | 12K 5% 1/4W  |
| Q11          | 8-729-201-05 | TRANSISTOR 2SC2878-B   |        | R51     | 1-249-417-11 | CARBON               | 1K 5% 1/4W   |
| Q12          | 8-729-201-05 | TRANSISTOR 2SC2878-B   |        | R52     | 1-249-417-11 | CARBON               | 1K 5% 1/4W   |
| Q13          | 8-729-201-05 | TRANSISTOR 2SC2878-B   |        | R53     | 1-249-417-11 | CARBON               | 1K 5% 1/4W   |
| Q14          | 8-729-201-05 | TRANSISTOR 2SC2878-B   |        | R54     | 1-249-431-11 | CARBON               | 15K 5% 1/4W  |
| Q15          | 8-729-900-65 | TRANSISTOR DTA144ES    |        | R55     | 1-249-437-11 | CARBON               | 47K 5% 1/4W  |
| Q101         | 8-729-384-48 | TRANSISTOR 2SA844-E    |        | R56     | 1-249-431-11 | CARBON               | 15K 5% 1/4W  |
| Q102         | 8-729-384-48 | TRANSISTOR 2SA844-E    |        | R57     | 1-249-431-11 | CARBON               | 15K 5% 1/4W  |
| Q103         | 8-729-384-48 | TRANSISTOR 2SA844-E    |        | R58     | 1-249-439-11 | CARBON               | 68K 5% 1/4W  |
| Q105         | 8-729-600-19 | TRANSISTOR 2SK381-A    |        | R60     | 1-215-465-00 | METAL                | 68K 1% 1/4W  |
| Q106         | 8-729-384-48 | TRANSISTOR 2SA844-E    |        | R61     | 1-215-445-00 | METAL                | 10K 1% 1/4W  |
| Q107         | 8-729-266-82 | TRANSISTOR 2SC2668-0   |        | R101    | 1-249-441-11 | CARBON               | 100K 5% 1/4W |
| Q108         | 8-729-384-48 | TRANSISTOR 2SA844-E    |        | R102    | 1-249-421-11 | CARBON               | 2.2K 5% 1/4W |
| Q109         | 8-729-600-19 | TRANSISTOR 2SK381-A    |        | R104    | 1-215-469-00 | METAL                | 100K 1% 1/4W |
| Q110         | 8-729-600-19 | TRANSISTOR 2SK381-A    |        | R105    | 1-215-477-00 | METAL                | 220K 1% 1/4W |
| Q113         | 8-729-600-19 | TRANSISTOR 2SK381-A    |        | R106    | 1-215-427-00 | METAL                | 1.8K 1% 1/4W |
| Q114         | 8-729-200-17 | TRANSISTOR 2SA1091-0   |        | R107    | 1-249-435-11 | CARBON               | 33K 5% 1/4W  |
| Q201         | 8-729-384-48 | TRANSISTOR 2SA844-E    |        | R108    | 1-249-430-11 | CARBON               | 12K 5% 1/4W  |
| Q111         | 8-729-200-17 | TRANSISTOR 2SA1091-0   |        | R109    | 1-249-417-11 | CARBON               | 1K 5% 1/4W   |
| Q201         | 8-729-384-48 | TRANSISTOR 2SA844-E    |        | R110    | 1-249-441-11 | CARBON               | 100K 5% 1/4W |
| Q111         | 8-729-200-17 | TRANSISTOR 2SA1091-0   |        | R111    | 1-249-417-11 | CARBON               | 1K 5% 1/4W   |
| Q201         | 8-729-384-48 | TRANSISTOR 2SA844-E    |        | R112    | 1-249-417-11 | CARBON               | 1K 5% 1/4W   |
| Q202         | 8-729-384-48 | TRANSISTOR 2SA844-E    |        | R113    | 1-247-903-00 | CARBON               | 1M 5% 1/4W   |
| Q203         | 8-729-384-48 | TRANSISTOR 2SA844-E    |        | R114    | 1-249-419-11 | CARBON               | 1.5K 5% 1/4W |
| Q205         | 8-729-600-19 | TRANSISTOR 2SK381-A    |        | R115    | 1-249-419-11 | CARBON               | 1.5K 5% 1/4W |
| Q206         | 8-729-384-48 | TRANSISTOR 2SA844-E    |        | R116    | 1-249-424-11 | CARBON               | 3.9K 5% 1/4W |
| Q207         | 8-729-266-82 | TRANSISTOR 2SC2668-0   |        | R117    | 1-249-419-11 | CARBON               | 1.5K 5% 1/4W |
| Q208         | 8-729-384-48 | TRANSISTOR 2SA844-E    |        | R118    | 1-215-421-00 | METAL                | 1K 1% 1/4W   |
| Q209         | 8-729-600-19 | TRANSISTOR 2SK381-A    |        | R119    | 1-249-405-11 | CARBON               | 100 5% 1/4W  |
| Q210         | 8-729-600-19 | TRANSISTOR 2SK381-A    |        | R120    | 1-249-405-11 | CARBON               | 100 5% 1/4W  |
| Q213         | 8-729-600-19 | TRANSISTOR 2SK381-A    |        | R121    | 1-249-409-11 | CARBON               | 220 5% 1/4W  |
| Q214         | 8-729-200-17 | TRANSISTOR 2SA1091-0   |        | R122    | 1-215-427-00 | METAL                | 1.8K 1% 1/4W |
| Q301         | 8-729-384-48 | TRANSISTOR 2SA844-E    |        | R123    | 1-249-429-11 | CARBON               | 10K 5% 1/4W  |
| Q302         | 8-729-384-48 | TRANSISTOR 2SA844-E    |        | R124    | 1-249-429-11 | CARBON               | 10K 5% 1/4W  |
| Q303         | 8-729-384-48 | TRANSISTOR 2SA844-E    |        | R125    | 1-249-422-11 | CARBON               | 2.7K 5% 1/4W |
| Q305         | 8-729-600-19 | TRANSISTOR 2SK381-A    |        | R127    | 1-215-453-00 | METAL                | 22K 1% 1/4W  |
| Q306         | 8-729-384-48 | TRANSISTOR 2SA844-E    |        |         |              |                      |              |



| REF. NO. | PART NO.     | DESCRIPTION | REMARK       | REF. NO. | PART NO.     | DESCRIPTION | REMARK                           |
|----------|--------------|-------------|--------------|----------|--------------|-------------|----------------------------------|
| R128     | 1-215-445-00 | METAL       | 10K 1% 1/4W  | R319     | 1-249-405-11 | CARBON      | 100 5% 1/4W                      |
| R136     | 1-215-477-00 | METAL       | 220K 1% 1/4W | R320     | 1-249-405-11 | CARBON      | 100 5% 1/4W                      |
| R137     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R321     | 1-249-409-11 | CARBON      | 220 5% 1/4W                      |
| R138     | 1-249-441-11 | CARBON      | 100K 5% 1/4W | R322     | 1-215-427-00 | METAL       | 1.8K 1% 1/4W                     |
| R140     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R323     | 1-249-429-11 | CARBON      | 10K 5% 1/4W                      |
| R141     | 1-215-469-00 | METAL       | 100K 1% 1/4W | R324     | 1-249-429-11 | CARBON      | 10K 5% 1/4W                      |
| R142     | 1-215-455-00 | METAL       | 27K 1% 1/4W  | R325     | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W                     |
| R143     | 1-215-488-00 | METAL       | 620K 1% 1/4W | R327     | 1-215-453-00 | METAL       | 22K 1% 1/4W                      |
| R144     | 1-249-434-11 | CARBON      | 27K 5% 1/4W  | R328     | 1-215-445-00 | METAL       | 10K 1% 1/4W                      |
| R146     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R336     | 1-215-477-00 | METAL       | 220K 1% 1/4W                     |
| R147     | 1-249-405-11 | CARBON      | 100 5% 1/4W  | R337     | 1-249-417-11 | CARBON      | 1K 5% 1/4W                       |
| R201     | 1-249-441-11 | CARBON      | 100K 5% 1/4W | R338     | 1-249-441-11 | CARBON      | 100K 5% 1/4W                     |
| R202     | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W | R340     | 1-249-429-11 | CARBON      | 10K 5% 1/4W                      |
| R204     | 1-215-469-00 | METAL       | 100K 1% 1/4W | R341     | 1-215-469-00 | METAL       | 100K 1% 1/4W                     |
| R205     | 1-215-477-00 | METAL       | 220K 1% 1/4W | R342     | 1-215-455-00 | METAL       | 27K 1% 1/4W                      |
| R206     | 1-215-427-00 | METAL       | 1.8K 1% 1/4W | R343     | 1-215-488-00 | METAL       | 620K 1% 1/4W                     |
| R207     | 1-249-435-11 | CARBON      | 33K 5% 1/4W  |          |              |             | *****                            |
| R208     | 1-249-430-11 | CARBON      | 12K 5% 1/4W  |          |              |             | *****                            |
| R209     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |          |              |             | *****                            |
| R210     | 1-249-441-11 | CARBON      | 100K 5% 1/4W |          |              |             | *****                            |
| R211     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |          |              |             | *****                            |
| R212     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |          |              |             | *A-1135-361-A BJ BOARD, COMPLETE |
| R213     | 1-247-903-00 | CARBON      | 1M 5% 1/4W   |          |              |             | *****                            |
| R214     | 1-249-419-11 | CARBON      | 1.5K 5% 1/4W |          |              |             | *****                            |
| R215     | 1-249-419-11 | CARBON      | 1.5K 5% 1/4W |          |              |             | *4-353-708-00 HOOK, FINGER       |
| R216     | 1-249-424-11 | CARBON      | 3.9K 5% 1/4W |          |              |             | <CAPACITOR>                      |
| R217     | 1-249-419-11 | CARBON      | 1.5K 5% 1/4W |          |              |             |                                  |
| R218     | 1-215-421-00 | METAL       | 1K 1% 1/4W   | C1       | 1-101-361-00 | CERAMIC     | 150PF 5% 50V                     |
| R219     | 1-249-405-11 | CARBON      | 100 5% 1/4W  | C2       | 1-101-361-00 | CERAMIC     | 150PF 5% 50V                     |
| R220     | 1-249-405-11 | CARBON      | 100 5% 1/4W  | C4       | 1-102-821-00 | CERAMIC     | 360PF 5% 50V                     |
| R221     | 1-249-409-11 | CARBON      | 220 5% 1/4W  | C5       | 1-130-473-00 | MYLAR       | 0.0015MF 5% 50V                  |
| R222     | 1-215-427-00 | METAL       | 1.8K 1% 1/4W | C11      | 1-104-302-11 | POLYSTYRENE | 0.001MF 5% 50V                   |
| R223     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |          |              |             |                                  |
| R224     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | C12      | 1-102-525-11 | CERAMIC     | 68PF 5% 50V                      |
| R225     | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W | C14      | 1-102-525-11 | CERAMIC     | 68PF 5% 50V                      |
| R227     | 1-215-453-00 | METAL       | 22K 1% 1/4W  | C15      | 1-102-525-11 | CERAMIC     | 68PF 5% 50V                      |
| R228     | 1-215-445-00 | METAL       | 10K 1% 1/4W  | C16      | 1-102-525-11 | CERAMIC     | 68PF 5% 50V                      |
| R236     | 1-215-477-00 | METAL       | 220K 1% 1/4W | C17      | 1-102-525-11 | CERAMIC     | 68PF 5% 50V                      |
| R237     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | C18      | 1-104-302-11 | POLYSTYRENE | 0.001MF 5% 50V                   |
| R238     | 1-249-441-11 | CARBON      | 100K 5% 1/4W | C19      | 1-102-973-00 | CERAMIC     | 100PF 5% 50V                     |
| R240     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | C20      | 1-102-525-11 | CERAMIC     | 68PF 5% 50V                      |
| R241     | 1-215-469-00 | METAL       | 100K 1% 1/4W | C21      | 1-101-361-00 | CERAMIC     | 150PF 5% 50V                     |
| R242     | 1-215-455-00 | METAL       | 27K 1% 1/4W  | C22      | 1-101-890-00 | CERAMIC     | 75PF 5% 50V                      |
| R243     | 1-215-488-00 | METAL       | 620K 1% 1/4W |          |              |             |                                  |
| R244     | 1-249-434-11 | CARBON      | 27K 5% 1/4W  | C23      | 1-102-965-00 | CERAMIC     | 39PF 5% 50V                      |
| R246     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | C25      | 1-102-946-00 | CERAMIC     | 9PF 1PF 50V                      |
| R247     | 1-249-405-11 | CARBON      | 100 5% 1/4W  | C26      | 1-102-944-00 | CERAMIC     | 7PF 1PF 50V                      |
| R301     | 1-249-441-11 | CARBON      | 100K 5% 1/4W | C27      | 1-101-361-00 | CERAMIC     | 150PF 5% 50V                     |
| R302     | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W | C28      | 1-130-471-00 | MYLAR       | 0.001MF 5% 50V                   |
| R304     | 1-215-469-00 | METAL       | 100K 1% 1/4W | C29      | 1-130-471-00 | MYLAR       | 0.001MF 5% 50V                   |
| R305     | 1-215-477-00 | METAL       | 220K 1% 1/4W | C30      | 1-101-004-00 | CERAMIC     | 0.01MF 50V                       |
| R306     | 1-215-427-00 | METAL       | 1.8K 1% 1/4W | C31      | 1-101-361-00 | CERAMIC     | 150PF 5% 50V                     |
| R307     | 1-249-435-11 | CARBON      | 33K 5% 1/4W  | C32      | 1-101-361-00 | CERAMIC     | 150PF 5% 50V                     |
| R308     | 1-249-430-11 | CARBON      | 12K 5% 1/4W  | C33      | 1-101-361-00 | CERAMIC     | 150PF 5% 50V                     |
| R309     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | C34      | 1-101-361-00 | CERAMIC     | 150PF 5% 50V                     |
| R310     | 1-249-441-11 | CARBON      | 100K 5% 1/4W | C35      | 1-130-471-00 | MYLAR       | 0.001MF 5% 50V                   |
| R311     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | C36      | 1-102-824-00 | CERAMIC     | 470PF 5% 50V                     |
| R312     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | C37      | 1-124-791-11 | ELECT       | 1MF 20% 50V                      |
| R313     | 1-247-903-00 | CARBON      | 1M 5% 1/4W   | C38      | 1-101-004-00 | CERAMIC     | 0.01MF 50V                       |
| R314     | 1-249-419-11 | CARBON      | 1.5K 5% 1/4W | C39      | 1-101-004-00 | CERAMIC     | 0.01MF 50V                       |
| R315     | 1-249-419-11 | CARBON      | 1.5K 5% 1/4W | C40      | 1-102-074-00 | CERAMIC     | 0.001MF 10% 50V                  |
| R316     | 1-249-424-11 | CARBON      | 3.9K 5% 1/4W | C61      | 1-101-888-00 | CERAMIC     | 68PF 5% 50V                      |
| R317     | 1-249-419-11 | CARBON      | 1.5K 5% 1/4W | C62      | 1-101-880-00 | CERAMIC     | 47PF 5% 50V                      |
| R318     | 1-215-421-00 | METAL       | 1K 1% 1/4W   | C63      | 1-101-888-00 | CERAMIC     | 68PF 5% 50V                      |

| REF. NO.                                 | PART NO.     | DESCRIPTION               | REMARK | REF. NO. | PART NO. | DESCRIPTION | REMARK       |                        |              |
|--|--------------|---------------------------|--------|----------|----------|-------------|--------------|------------------------|--------------|
| C64                                      | 1-101-880-00 | CERAMIC                   | 47PF   | 5%       | 50V      | IC22        | 8-759-240-71 | IC TC4071BP            |              |
| C65                                      | 1-102-820-00 | CERAMIC                   | 330PF  | 5%       | 50V      | IC23        | 8-759-040-73 | IC MC14073BCP          |              |
| C66                                      | 1-101-004-00 | CERAMIC                   | 0.01MF |          | 50V      | IC24        | 8-759-000-51 | IC MC14069UBCP         |              |
| C67                                      | 1-101-880-00 | CERAMIC                   | 47PF   | 5%       | 50V      | IC25        | 8-759-000-51 | IC MC14069UBCP         |              |
| C100                                     | 1-124-910-11 | ELECT                     | 47MF   | 20%      | 16V      | IC26        | 8-759-041-75 | IC MC14175BCP          |              |
| C102                                     | 1-124-034-51 | ELECT                     | 33MF   | 20%      | 16V      | IC27        | 8-759-140-53 | IC UPD4053BC           |              |
| C106                                     | 1-101-004-00 | CERAMIC                   | 0.01MF |          | 50V      | IC28        | 8-759-000-77 | IC MC14520BCP          |              |
| C108                                     | 1-124-034-51 | ELECT                     | 33MF   | 20%      | 16V      | IC29        | 8-759-345-38 | IC HD14538BP           |              |
| C109                                     | 1-101-004-00 | CERAMIC                   | 0.01MF |          | 50V      |             |              |                        |              |
| C110                                     | 1-101-004-00 | CERAMIC                   | 0.01MF |          | 50V      |             |              |                        |              |
|  |              |                           |        |          |          |             |              | <COIL>                 |              |
| C111                                     | 1-101-004-00 | CERAMIC                   | 0.01MF |          | 50V      | L1          | 1-408-098-00 | INDUCTOR               | 560UH        |
| C112                                     | 1-101-004-00 | CERAMIC                   | 0.01MF |          | 50V      | L2          | 1-408-098-00 | INDUCTOR               | 560UH        |
| C113                                     | 1-101-004-00 | CERAMIC                   | 0.01MF |          | 50V      | L3          | 9-910-999-31 | INDUCTOR               | 680UH        |
| C114                                     | 1-124-915-11 | ELECT                     | 10MF   | 20%      | 16V      |             |              |                        |              |
| C115                                     | 1-101-004-00 | CERAMIC                   | 0.01MF |          | 50V      |             |              |                        |              |
| C116                                     | 1-101-004-00 | CERAMIC                   | 0.01MF |          | 50V      |             |              | <TRANSISTOR>           |              |
| C117                                     | 1-101-004-00 | CERAMIC                   | 0.01MF |          | 50V      | Q14         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
| C118                                     | 1-124-915-11 | ELECT                     | 10MF   | 20%      | 16V      | Q15         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
| C120                                     | 1-101-004-00 | CERAMIC                   | 0.01MF |          | 50V      | Q16         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
| C121                                     | 1-101-004-00 | CERAMIC                   | 0.01MF |          | 50V      | Q17         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
| C122                                     | 1-101-004-00 | CERAMIC                   | 0.01MF |          | 50V      | Q18         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
| C130                                     | 1-124-034-51 | ELECT                     | 33MF   | 20%      | 16V      | Q19         | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |              |
|  |              |                           |        |          |          | Q20         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
|  |              |                           |        |          |          | Q21         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
|  |              |                           |        |          |          | Q22         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
|  |              |                           |        |          |          | Q23         | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |              |
| <b>&lt;COMPOSITION CIRCUIT BLOCK&gt;</b> |              |                           |        |          |          |             |              |                        |              |
| CP1                                      | 1-232-738-11 | COMPOSITION CIRCUIT BLOCK |        |          |          |             |              |                        |              |
| CP2                                      | 1-232-738-11 | COMPOSITION CIRCUIT BLOCK |        |          |          |             |              |                        |              |
| CP3                                      | 1-232-738-11 | COMPOSITION CIRCUIT BLOCK |        |          |          |             |              |                        |              |
| CP4                                      | 1-232-738-11 | COMPOSITION CIRCUIT BLOCK |        |          |          |             |              |                        |              |
| CP5                                      | 1-232-738-11 | COMPOSITION CIRCUIT BLOCK |        |          |          |             |              |                        |              |
|  |              |                           |        |          |          |             |              |                        |              |
| <b>&lt;DIODE&gt;</b>                     |              |                           |        |          |          |             |              |                        |              |
| D1                                       | 8-719-911-19 | DIODE ISS119              |        |          |          | R2          | 1-215-439-00 | METAL                  | 5.6K 1% 1/4W |
| D2                                       | 8-719-911-19 | DIODE ISS119              |        |          |          | R3          | 1-249-422-11 | CARBON                 | 2.7K 5% 1/4W |
| D3                                       | 8-719-911-19 | DIODE ISS119              |        |          |          | R4          | 1-215-449-00 | METAL                  | 15K 1% 1/4W  |
| D7                                       | 8-719-911-19 | DIODE ISS119              |        |          |          | R5          | 1-249-441-11 | CARBON                 | 100K 5% 1/4W |
| D8                                       | 8-719-911-19 | DIODE ISS119              |        |          |          | R6          | 1-249-425-11 | CARBON                 | 4.7K 5% 1/4W |
| D9                                       | 8-719-911-19 | DIODE ISS119              |        |          |          | R7          | 1-215-439-00 | METAL                  | 5.6K 1% 1/4W |
| D11                                      | 8-719-016-42 | DIODE MC932               |        |          |          | R37         | 1-249-441-11 | CARBON                 | 100K 5% 1/4W |
|  |              |                           |        |          |          | R38         | 1-215-454-00 | METAL                  | 24K 1% 1/4W  |
|  |              |                           |        |          |          | R39         | 1-249-422-11 | CARBON                 | 2.7K 5% 1/4W |
|  |              |                           |        |          |          | R42         | 1-249-433-11 | CARBON                 | 22K 5% 1/4W  |
| <b>&lt;IC&gt;</b>                        |              |                           |        |          |          |             |              |                        |              |
| IC1                                      | 8-759-345-38 | IC HD14538BP              |        |          |          | R43         | 1-247-876-11 | CARBON                 | 75K 5% 1/4W  |
| IC2                                      | 8-759-040-01 | IC MC14001BCP             |        |          |          | R44         | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  |
| IC3                                      | 8-759-240-40 | IC TC4040BP               |        |          |          | R45         | 1-249-441-11 | CARBON                 | 100K 5% 1/4W |
| IC4                                      | 8-759-240-40 | IC TC4040BP               |        |          |          | R46         | 1-249-441-11 | CARBON                 | 100K 5% 1/4W |
| IC5                                      | 8-759-000-35 | IC MC14027BCP             |        |          |          | R47         | 1-247-862-11 | CARBON                 | 20K 5% 1/4W  |
| IC6                                      | 8-759-000-35 | IC MC14027BCP             |        |          |          | R48         | 1-215-467-00 | METAL                  | 82K 1% 1/4W  |
| IC7                                      | 8-759-000-35 | IC MC14027BCP             |        |          |          | R49         | 1-249-422-11 | CARBON                 | 2.7K 5% 1/4W |
| IC8                                      | 8-759-000-35 | IC MC14027BCP             |        |          |          | R50         | 1-215-469-00 | METAL                  | 100K 1% 1/4W |
| IC9                                      | 8-759-000-35 | IC MC14027BCP             |        |          |          | R51         | 1-215-445-00 | METAL                  | 10K 1% 1/4W  |
| IC10                                     | 8-759-345-38 | IC HD14538BP              |        |          |          | R52         | 1-247-885-00 | CARBON                 | 180K 5% 1/4W |
| IC11                                     | 8-759-345-38 | IC HD14538BP              |        |          |          | R53         | 1-215-449-00 | METAL                  | 15K 1% 1/4W  |
| IC12                                     | 8-759-345-38 | IC HD14538BP              |        |          |          | R54         | 1-249-422-11 | CARBON                 | 2.7K 5% 1/4W |
| IC13                                     | 8-759-040-01 | IC MC14001BCP             |        |          |          | R56         | 1-249-434-11 | CARBON                 | 27K 5% 1/4W  |
| IC14                                     | 8-759-040-01 | IC MC14001BCP             |        |          |          | R57         | 1-249-422-11 | CARBON                 | 2.7K 5% 1/4W |
| IC15                                     | 8-759-240-71 | IC TC4071BP               |        |          |          | R58         | 1-249-425-11 | CARBON                 | 4.7K 5% 1/4W |
| IC16                                     | 8-759-040-11 | IC MC14011BCP             |        |          |          | R59         | 1-247-836-11 | CARBON                 | 1.6K 5% 1/4W |
| IC17                                     | 8-759-040-11 | IC MC14011BCP             |        |          |          | R60         | 1-249-427-11 | CARBON                 | 6.8K 5% 1/4W |
| IC18                                     | 8-759-000-32 | IC MC14023BCP             |        |          |          | R61         | 1-215-449-00 | METAL                  | 15K 1% 1/4W  |
| IC19                                     | 8-759-240-81 | IC TC4081BP               |        |          |          | R62         | 1-249-433-11 | CARBON                 | 22K 5% 1/4W  |
| IC20                                     | 8-759-240-81 | IC TC4081BP               |        |          |          | R63         | 1-249-425-11 | CARBON                 | 4.7K 5% 1/4W |
| IC21                                     | 8-759-240-71 | IC TC4071BP               |        |          |          | R64         | 1-249-425-11 | CARBON                 | 4.7K 5% 1/4W |

**BJ** **BK**

| REF. NO.                         | PART NO.     | DESCRIPTION      | REMARK       | REF. NO. | PART NO.     | DESCRIPTION | REMARK       |
|----------------------------------|--------------|------------------|--------------|----------|--------------|-------------|--------------|
| R65                              | 1-249-417-11 | CARBON           | 1K 5% 1/4W   |          |              |             |              |
| R66                              | 1-249-430-11 | CARBON           | 12K 5% 1/4W  |          |              |             |              |
| R67                              | 1-249-425-11 | CARBON           | 4.7K 5% 1/4W |          |              |             |              |
| R68                              | 1-249-433-11 | CARBON           | 22K 5% 1/4W  |          |              |             |              |
| R69                              | 1-249-425-11 | CARBON           | 4.7K 5% 1/4W |          |              |             |              |
| R70                              | 1-249-417-11 | CARBON           | 1K 5% 1/4W   |          |              |             |              |
| R71                              | 1-249-430-11 | CARBON           | 12K 5% 1/4W  |          |              |             |              |
| R72                              | 1-249-433-11 | CARBON           | 22K 5% 1/4W  |          |              |             |              |
| R74                              | 1-249-430-11 | CARBON           | 12K 5% 1/4W  |          |              |             |              |
| R75                              | 1-249-422-11 | CARBON           | 2.7K 5% 1/4W |          |              |             |              |
| R76                              | 1-215-463-00 | METAL            | 56K 1% 1/4W  |          |              |             |              |
| R77                              | 1-215-475-00 | METAL            | 180K 1% 1/4W |          |              |             |              |
| R78                              | 1-215-439-00 | METAL            | 5.6K 1% 1/4W |          |              |             |              |
| R79                              | 1-249-425-11 | CARBON           | 4.7K 5% 1/4W |          |              |             |              |
| R80                              | 1-249-433-11 | CARBON           | 22K 5% 1/4W  |          |              |             |              |
| R81                              | 1-249-425-11 | CARBON           | 4.7K 5% 1/4W |          |              |             |              |
| R82                              | 1-249-415-11 | CARBON           | 680 5% 1/4W  |          |              |             |              |
| R83                              | 1-249-417-11 | CARBON           | 1K 5% 1/4W   |          |              |             |              |
| R85                              | 1-249-430-11 | CARBON           | 12K 5% 1/4W  |          |              |             |              |
| R87                              | 1-249-422-11 | CARBON           | 2.7K 5% 1/4W |          |              |             |              |
| R89                              | 1-247-887-00 | CARBON           | 220K 5% 1/4W |          |              |             |              |
| R90                              | 1-249-441-11 | CARBON           | 100K 5% 1/4W |          |              |             |              |
| R91                              | 1-249-441-11 | CARBON           | 100K 5% 1/4W |          |              |             |              |
| R92                              | 1-249-441-11 | CARBON           | 100K 5% 1/4W |          |              |             |              |
| R93                              | 1-249-429-11 | CARBON           | 10K 5% 1/4W  |          |              |             |              |
| R94                              | 1-249-429-11 | CARBON           | 10K 5% 1/4W  |          |              |             |              |
| R95                              | 1-249-441-11 | CARBON           | 100K 5% 1/4W |          |              |             |              |
| R96                              | 1-249-417-11 | CARBON           | 1K 5% 1/4W   |          |              |             |              |
| R100                             | 1-249-423-11 | CARBON           | 3.3K 5% 1/4W |          |              |             |              |
| R111                             | 1-249-427-11 | CARBON           | 6.8K 5% 1/4W |          |              |             |              |
| R112                             | 1-249-429-11 | CARBON           | 10K 5% 1/4W  |          |              |             |              |
| R113                             | 1-249-429-11 | CARBON           | 10K 5% 1/4W  |          |              |             |              |
| R114                             | 1-249-422-11 | CARBON           | 2.7K 5% 1/4W |          |              |             |              |
| R115                             | 1-249-419-11 | CARBON           | 1.5K 5% 1/4W |          |              |             |              |
| R116                             | 1-249-427-11 | CARBON           | 6.8K 5% 1/4W |          |              |             |              |
| R117                             | 1-249-429-11 | CARBON           | 10K 5% 1/4W  |          |              |             |              |
| R118                             | 1-249-429-11 | CARBON           | 10K 5% 1/4W  |          |              |             |              |
| R119                             | 1-249-422-11 | CARBON           | 2.7K 5% 1/4W |          |              |             |              |
| R120                             | 1-249-419-11 | CARBON           | 1.5K 5% 1/4W |          |              |             |              |
| R121                             | 1-249-417-11 | CARBON           | 1K 5% 1/4W   |          |              |             |              |
| R122                             | 1-249-417-11 | CARBON           | 1K 5% 1/4W   |          |              |             |              |
| R123                             | 1-249-413-11 | CARBON           | 470 5% 1/4W  |          |              |             |              |
| R124                             | 1-249-417-11 | CARBON           | 1K 5% 1/4W   |          |              |             |              |
| R125                             | 1-249-417-11 | CARBON           | 1K 5% 1/4W   |          |              |             |              |
| R126                             | 1-249-417-11 | CARBON           | 1K 5% 1/4W   |          |              |             |              |
| R127                             | 1-249-417-11 | CARBON           | 1K 5% 1/4W   |          |              |             |              |
| R128                             | 1-249-417-11 | CARBON           | 1K 5% 1/4W   |          |              |             |              |
| R129                             | 1-249-417-11 | CARBON           | 1K 5% 1/4W   |          |              |             |              |
| <b>&lt;VARIABLE RESISTOR&gt;</b> |              |                  |              |          |              |             |              |
| RV1                              | 1-237-504-21 | RES, ADJ, CERMET | 20K          |          |              |             |              |
| RV3                              | 1-237-504-21 | RES, ADJ, CERMET | 20K          |          |              |             |              |
| RV4                              | 1-237-503-21 | RES, ADJ, CERMET | 10K          |          |              |             |              |
| RV5                              | 1-237-506-21 | RES, ADJ, CERMET | 100K         |          |              |             |              |
| RV6                              | 1-237-505-21 | RES, ADJ, CERMET | 50K          |          |              |             |              |
| RV7                              | 1-237-504-21 | RES, ADJ, CERMET | 20K          |          |              |             |              |
| RV8                              | 1-237-504-21 | RES, ADJ, CERMET | 20K          |          |              |             |              |
| RV9                              | 1-237-505-21 | RES, ADJ, CERMET | 50K          |          |              |             |              |
| <b>&lt;SWITCH&gt;</b>            |              |                  |              |          |              |             |              |
| S1                               | 1-570-857-11 | SWITCH, SLIDE    |              |          |              |             |              |
|                                  |              |                  |              | C107     | 1-101-004-00 | CERAMIC     | 0.01MF       |
|                                  |              |                  |              | C108     | 1-106-371-00 | MYLAR       | 0.015MF      |
|                                  |              |                  |              |          |              |             | 10% 50V 200V |

| REF. NO. | PART NO.     | DESCRIPTION       | REMARK  | REF. NO. | PART NO. | DESCRIPTION | REMARK                              |
|----------|--------------|-------------------|---------|----------|----------|-------------|-------------------------------------|
| C109     | 1-124-046-00 | ELECT             | 10MF    | 20%      | 160V     |             |                                     |
| C110     | 1-102-973-00 | CERAMIC           | 100PF   | 5%       | 50V      | D114        | 8-719-911-19 DIODE ISS119           |
| C111     | 1-102-965-00 | CERAMIC           | 39PF    | 5%       | 50V      | D115        | 8-719-911-19 DIODE ISS119           |
| C112     | 1-102-942-00 | CERAMIC           | 5PF     | 1PF      | 50V      | D116        | 8-719-911-19 DIODE ISS119           |
| C114     | 1-102-936-00 | CERAMIC           | 3PF     | 0.25PF   | 50V      | D201        | 8-719-911-19 DIODE ISS119           |
|          |              |                   |         |          |          | D202        | 8-719-911-19 DIODE ISS119           |
| C115     | 1-101-880-00 | CERAMIC           | 47PF    | 5%       | 50V      | D203        | 8-719-911-19 DIODE ISS119           |
| C133     | 1-102-942-00 | CERAMIC           | 5PF     | 1PF      | 50V      | D204        | 8-719-911-19 DIODE ISS119           |
| C200     | 1-136-165-00 | FILM              | 0.1MF   | 5%       | 50V      | D205        | 8-719-911-19 DIODE ISS119           |
| C202     | 1-124-046-00 | ELECT             | 10MF    | 20%      | 160V     | D206        | 8-719-911-19 DIODE ISS119           |
| C203     | 1-102-976-00 | CERAMIC           | 180PF   | 5%       | 50V      | D207        | 8-719-911-19 DIODE ISS119           |
| C204     | 1-136-110-00 | FILM              | 0.91MF  | 5%       | 200V     | D208        | 8-719-911-19 DIODE ISS119           |
| C205     | 1-124-034-51 | ELECT             | 33MF    | 20%      | 16V      | D209        | 8-719-901-83 DIODE ISS83            |
| C206     | 1-124-910-11 | ELECT             | 47MF    | 20%      | 25V      | D210        | 8-719-300-80 DIODE RU-1C            |
| C207     | 1-101-004-00 | CERAMIC           | 0.01MF  |          | 50V      | D211        | 8-719-300-80 DIODE RU-1C            |
| C208     | 1-106-371-00 | MYLAR             | 0.015MF | 10%      | 200V     | D212        | 8-719-911-19 DIODE ISS119           |
| C209     | 1-124-046-00 | ELECT             | 10MF    | 20%      | 160V     | D213        | 8-719-911-19 DIODE ISS119           |
| C210     | 1-102-973-00 | CERAMIC           | 100PF   | 5%       | 50V      | D214        | 8-719-911-19 DIODE ISS119           |
| C211     | 1-102-965-00 | CERAMIC           | 39PF    | 5%       | 50V      | D215        | 8-719-911-19 DIODE ISS119           |
| C212     | 1-102-942-00 | CERAMIC           | 5PF     | 1PF      | 50V      | D216        | 8-719-911-19 DIODE ISS119           |
| C214     | 1-102-936-00 | CERAMIC           | 3PF     | 0.25PF   | 50V      | D301        | 8-719-911-19 DIODE ISS119           |
| C215     | 1-101-880-00 | CERAMIC           | 47PF    | 5%       | 50V      | D302        | 8-719-911-19 DIODE ISS119           |
| C233     | 1-102-942-00 | CERAMIC           | 5PF     | 1PF      | 50V      | D303        | 8-719-911-19 DIODE ISS119           |
| C300     | 1-136-165-00 | FILM              | 0.1MF   | 5%       | 50V      | D304        | 8-719-911-19 DIODE ISS119           |
| C302     | 1-124-046-00 | ELECT             | 10MF    | 20%      | 160V     | D305        | 8-719-911-19 DIODE ISS119           |
| C303     | 1-102-976-00 | CERAMIC           | 180PF   | 5%       | 50V      | D306        | 8-719-911-19 DIODE ISS119           |
| C304     | 1-136-110-00 | FILM              | 0.91MF  | 5%       | 200V     | D307        | 8-719-911-19 DIODE ISS119           |
| C305     | 1-124-034-51 | ELECT             | 33MF    | 20%      | 16V      | D308        | 8-719-911-19 DIODE ISS119           |
| C306     | 1-124-910-11 | ELECT             | 47MF    | 20%      | 25V      | D309        | 8-719-901-83 DIODE ISS83            |
| C307     | 1-101-004-00 | CERAMIC           | 0.01MF  |          | 50V      | D310        | 8-719-300-80 DIODE RU-1C            |
| C308     | 1-106-371-00 | MYLAR             | 0.015MF | 10%      | 200V     | D311        | 8-719-300-80 DIODE RU-1C            |
| C309     | 1-124-046-00 | ELECT             | 10MF    | 20%      | 160V     | D312        | 8-719-911-19 DIODE ISS119           |
| C310     | 1-102-973-00 | CERAMIC           | 100PF   | 5%       | 50V      | D313        | 8-719-911-19 DIODE ISS119           |
| C311     | 1-102-965-00 | CERAMIC           | 39PF    | 5%       | 50V      | D314        | 8-719-911-19 DIODE ISS119           |
| C312     | 1-102-942-00 | CERAMIC           | 5PF     | 1PF      | 50V      | D315        | 8-719-911-19 DIODE ISS119           |
| C314     | 1-102-936-00 | CERAMIC           | 3PF     | 0.25PF   | 50V      | D316        | 8-719-911-19 DIODE ISS119           |
| C315     | 1-101-880-00 | CERAMIC           | 47PF    | 5%       | 50V      |             |                                     |
| C333     | 1-102-942-00 | CERAMIC           | 5PF     | 1PF      | 50V      |             |                                     |
|          |              |                   |         |          |          |             | <IC>                                |
|          |              |                   |         |          |          | IC1         | 8-759-145-58 IC UPC4558C            |
|          |              |                   |         |          |          |             | <TRANSISTOR>                        |
| CV101    | 1-141-179-12 | CAP, VAR, TRIMMER |         |          |          | Q1          | 8-729-384-48 TRANSISTOR 2SA844-E    |
| CV102    | 1-141-171-00 | CAP, TRIMMER 15P  |         |          |          | Q12         | 8-729-200-17 TRANSISTOR 2SA1091-0   |
| CV201    | 1-141-179-12 | CAP, VAR, TRIMMER |         |          |          | Q13         | 8-729-200-17 TRANSISTOR 2SA1091-0   |
| CV202    | 1-141-171-00 | CAP, TRIMMER 15P  |         |          |          | Q101        | 8-729-266-82 TRANSISTOR 2SC2668-0   |
| CV301    | 1-141-179-12 | CAP, VAR, TRIMMER |         |          |          | Q102        | 8-729-384-48 TRANSISTOR 2SA844-E    |
| CV302    | 1-141-171-00 | CAP, TRIMMER 15P  |         |          |          |             |                                     |
|          |              |                   |         |          |          |             |                                     |
|          |              |                   |         |          |          |             | <DIODE>                             |
| D1       | 8-719-911-19 | DIODE ISS119      |         |          |          | Q103        | 8-729-119-78 TRANSISTOR 2SC2785-HFE |
| D2       | 8-719-911-19 | DIODE ISS119      |         |          |          | Q104        | 8-729-119-78 TRANSISTOR 2SC2785-HFE |
| D101     | 8-719-911-19 | DIODE ISS119      |         |          |          | Q105        | 8-729-384-48 TRANSISTOR 2SA844-E    |
| D102     | 8-719-911-19 | DIODE ISS119      |         |          |          | Q106        | 8-729-804-63 TRANSISTOR 2SA1406-E   |
| D103     | 8-719-911-19 | DIODE ISS119      |         |          |          | Q107        | 8-729-804-58 TRANSISTOR 2SC3600-E   |
| D104     | 8-719-911-19 | DIODE ISS119      |         |          |          | Q108        | 8-729-804-58 TRANSISTOR 2SC3600-E   |
| D105     | 8-719-911-19 | DIODE ISS119      |         |          |          | Q109        | 8-729-804-63 TRANSISTOR 2SA1406-E   |
| D106     | 8-719-911-19 | DIODE ISS119      |         |          |          | Q110        | 8-729-804-58 TRANSISTOR 2SC3600-E   |
| D107     | 8-719-911-19 | DIODE ISS119      |         |          |          | Q111        | 8-729-804-63 TRANSISTOR 2SA1406-E   |
| D108     | 8-719-911-19 | DIODE ISS119      |         |          |          | Q112        | 8-729-255-12 TRANSISTOR 2SC2551-0   |
| D109     | 8-719-901-83 | DIODE ISS83       |         |          |          | Q113        | 8-729-119-78 TRANSISTOR 2SC2785-HFE |
| D110     | 8-719-300-80 | DIODE RU-1C       |         |          |          | Q114        | 8-729-119-78 TRANSISTOR 2SC2785-HFE |
| D111     | 8-719-300-80 | DIODE RU-1C       |         |          |          | Q115        | 8-729-119-78 TRANSISTOR 2SC2785-HFE |
| D112     | 8-719-911-19 | DIODE ISS119      |         |          |          | Q201        | 8-729-266-82 TRANSISTOR 2SC2668-0   |
| D113     | 8-719-911-19 | DIODE ISS119      |         |          |          | Q202        | 8-729-384-48 TRANSISTOR 2SA844-E    |
|          |              |                   |         |          |          | Q203        | 8-729-119-78 TRANSISTOR 2SC2785-HFE |

| REF. NO. | PART NO.     | DESCRIPTION            | REMARK       | REF. NO. | PART NO.     | DESCRIPTION | REMARK       |
|----------|--------------|------------------------|--------------|----------|--------------|-------------|--------------|
| Q204     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R126     | 1-215-394-00 | METAL       | 75 1% 1/4W   |
| Q205     | 8-729-384-48 | TRANSISTOR 2SA844-E    |              | R127     | 1-215-394-00 | METAL       | 75 1% 1/4W   |
| Q206     | 8-729-804-63 | TRANSISTOR 2SA1406-E   |              | R128     | 1-214-779-00 | METAL       | 120K 1% 1/4W |
| Q207     | 8-729-804-58 | TRANSISTOR 2SC3600-E   |              | R129     | 1-249-430-11 | CARBON      | 12K 5% 1/4W  |
| Q208     | 8-729-804-58 | TRANSISTOR 2SC3600-E   |              | R130     | 1-216-443-11 | METAL OXIDE | 56K 5% 1W F  |
| Q209     | 8-729-804-63 | TRANSISTOR 2SA1406-E   |              | R131     | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |
| Q210     | 8-729-804-58 | TRANSISTOR 2SC3600-E   |              | R132     | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| Q211     | 8-729-804-63 | TRANSISTOR 2SA1406-E   |              | R133     | 1-249-435-11 | CARBON      | 33K 5% 1/4W  |
| Q212     | 8-729-255-12 | TRANSISTOR 2SC2551-O   |              | R134     | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |
| Q213     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R135     | 1-249-426-11 | CARBON      | 5.6K 5% 1/4W |
| Q214     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R136     | 1-249-423-11 | CARBON      | 3.3K 5% 1/4W |
| Q215     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R137     | 1-247-903-00 | CARBON      | 1M 5% 1/4W   |
| Q301     | 8-729-266-82 | TRANSISTOR 2SC2668-O   |              | R138     | 1-249-426-11 | CARBON      | 5.6K 5% 1/4W |
| Q302     | 8-729-384-48 | TRANSISTOR 2SA844-E    |              | R139     | 1-215-441-00 | METAL       | 6.8K 1% 1/4W |
| Q303     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R140     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| Q304     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R141     | 1-249-413-11 | CARBON      | 470 5% 1/4W  |
| Q305     | 8-729-384-48 | TRANSISTOR 2SA844-E    |              | R142     | 1-249-390-11 | CARBON      | 5.6 5% 1/4W  |
| Q306     | 8-729-804-63 | TRANSISTOR 2SA1406-E   |              | R143     | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| Q307     | 8-729-804-58 | TRANSISTOR 2SC3600-E   |              | R201     | 1-215-391-00 | METAL       | 56 1% 1/4W   |
| Q308     | 8-729-804-58 | TRANSISTOR 2SC3600-E   |              | R202     | 1-249-419-11 | CARBON      | 1.5K 5% 1/4W |
| Q309     | 8-729-804-63 | TRANSISTOR 2SA1406-E   |              | R204     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| Q310     | 8-729-804-58 | TRANSISTOR 2SC3600-E   |              | R205     | 1-249-424-11 | CARBON      | 3.9K 5% 1/4W |
| Q311     | 8-729-804-63 | TRANSISTOR 2SA1406-E   |              | R206     | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| Q312     | 8-729-255-12 | TRANSISTOR 2SC2551-O   |              | R207     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| Q313     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R208     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| Q314     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R209     | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W |
| Q315     | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              | R210     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
|          |              |                        |              | R211     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
|          |              |                        |              | R212     | 1-215-391-00 | METAL       | 56 1% 1/4W   |
|          |              |                        |              | R213     | 1-215-391-00 | METAL       | 56 1% 1/4W   |
|          |              |                        |              | R214     | 1-215-437-00 | METAL       | 4.7K 1% 1/4W |
| R1       | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  | R215     | 1-214-765-00 | METAL       | 33K 1% 1/4W  |
| R2       | 1-249-441-11 | CARBON                 | 100K 5% 1/4W | R216     | 1-214-765-00 | METAL       | 33K 1% 1/4W  |
| R3       | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   | R217     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R10      | 1-215-878-00 | METAL OXIDE            | 33K 5% 1W F  | R218     | 1-214-781-00 | METAL       | 150K 1% 1/4W |
| R11      | 1-249-439-11 | CARBON                 | 68K 5% 1/4W  | R219     | 1-215-447-00 | METAL       | 12K 1% 1/4W  |
| R12      | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   | R220     | 1-216-430-11 | METAL OXIDE | 390 5% 1W F  |
| R13      | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  | R221     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R14      | 1-215-469-00 | METAL                  | 100K 1% 1/4W | R222     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R15      | 1-215-461-00 | METAL                  | 47K 1% 1/4W  | R223     | 1-215-405-00 | METAL       | 220 1% 1/4W  |
| R16      | 1-215-447-00 | METAL                  | 12K 1% 1/4W  | R224     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R101     | 1-215-391-00 | METAL                  | 56 1% 1/4W   | R225     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R102     | 1-249-419-11 | CARBON                 | 1.5K 5% 1/4W | R226     | 1-215-394-00 | METAL       | 75 1% 1/4W   |
| R104     | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R227     | 1-215-394-00 | METAL       | 75 1% 1/4W   |
| R105     | 1-249-424-11 | CARBON                 | 3.9K 5% 1/4W | R228     | 1-214-779-00 | METAL       | 120K 1% 1/4W |
| R106     | 1-249-422-11 | CARBON                 | 2.7K 5% 1/4W | R229     | 1-249-430-11 | CARBON      | 12K 5% 1/4W  |
| R107     | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R230     | 1-216-443-11 | METAL OXIDE | 56K 5% 1W F  |
| R108     | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R231     | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |
| R109     | 1-249-421-11 | CARBON                 | 2.2K 5% 1/4W | R232     | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| R110     | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R233     | 1-249-435-11 | CARBON      | 33K 5% 1/4W  |
| R111     | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R234     | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |
| R112     | 1-215-391-00 | METAL                  | 56 1% 1/4W   | R235     | 1-249-426-11 | CARBON      | 5.6K 5% 1/4W |
| R113     | 1-215-391-00 | METAL                  | 56 1% 1/4W   | R236     | 1-249-423-11 | CARBON      | 3.3K 5% 1/4W |
| R114     | 1-215-437-00 | METAL                  | 4.7K 1% 1/4W | R237     | 1-247-903-00 | CARBON      | 1M 5% 1/4W   |
| R115     | 1-214-765-00 | METAL                  | 33K 1% 1/4W  | R238     | 1-249-426-11 | CARBON      | 5.6K 5% 1/4W |
| R116     | 1-214-765-00 | METAL                  | 33K 1% 1/4W  | R239     | 1-215-441-00 | METAL       | 6.8K 1% 1/4W |
| R117     | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R240     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R118     | 1-214-781-00 | METAL                  | 150K 1% 1/4W | R241     | 1-249-413-11 | CARBON      | 470 5% 1/4W  |
| R119     | 1-215-447-00 | METAL                  | 12K 1% 1/4W  | R242     | 1-249-390-11 | CARBON      | 5.6 5% 1/4W  |
| R120     | 1-216-430-11 | METAL OXIDE            | 390 5% 1W F  | R243     | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W |
| R121     | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R301     | 1-215-391-00 | METAL       | 56 1% 1/4W   |
| R122     | 1-249-405-11 | CARBON                 | 100 5% 1/4W  | R302     | 1-249-419-11 | CARBON      | 1.5K 5% 1/4W |
| R123     | 1-215-405-00 | METAL                  | 220 1% 1/4W  | R304     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R124     | 1-249-405-11 | CARBON                 | 100 5% 1/4W  |          |              |             |              |
| R125     | 1-249-405-11 | CARBON                 | 100 5% 1/4W  |          |              |             |              |

| REF. NO.   | PART NO.     | DESCRIPTION  | REMARK         | REF. NO. | PART NO.     | DESCRIPTION        | REMARK     |
|--|--------------|--------------|----------------|----------|--------------|--------------------|------------|
| R305   | 1-249-424-11 | CARBON       | 3.9K 5% 1/4W   | C23      | 1-163-097-00 | CERAMIC CHIP 15PF  | 5% 50V     |
| R306   | 1-249-422-11 | CARBON       | 2.7K 5% 1/4W   | C30      | 1-163-251-11 | CERAMIC CHIP 100PF | 5% 50V     |
| R307   | 1-249-405-11 | CARBON       | 100 5% 1/4W    | C32      | 1-163-235-11 | CERAMIC CHIP 22PF  | 5% 50V     |
| R308   | 1-249-405-11 | CARBON       | 100 5% 1/4W    | C34      | 1-163-099-00 | CERAMIC CHIP 18PF  | 5% 50V     |
| R309   | 1-249-421-11 | CARBON       | 2.2K 5% 1/4W   | C37      | 1-163-235-11 | CERAMIC CHIP 22PF  | 5% 50V     |
| R310   | 1-249-405-11 | CARBON       | 100 5% 1/4W    | C38      | 1-163-222-11 | CERAMIC CHIP 5PF   | 0.25PF 50V |
| R311   | 1-249-405-11 | CARBON       | 100 5% 1/4W    | C40      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R312   | 1-215-391-00 | METAL        | 56 1% 1/4W     | C42      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R313   | 1-215-391-00 | METAL        | 56 1% 1/4W     | C43      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R314   | 1-215-437-00 | METAL        | 4.7K 1% 1/4W   | C44      | 1-163-113-00 | CERAMIC CHIP 68PF  | 5% 50V     |
| R315   | 1-214-765-00 | METAL        | 33K 1% 1/4W    | C45      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R316   | 1-214-765-00 | METAL        | 33K 1% 1/4W    | C47      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R317   | 1-249-405-11 | CARBON       | 100 5% 1/4W    | C48      | 1-124-907-11 | ELECT 10MF         | 20% 50V    |
| R318   | 1-214-781-00 | METAL        | 150K 1% 1/4W   | C49      | 1-163-097-00 | CERAMIC CHIP 15PF  | 5% 50V     |
| R319   | 1-215-447-00 | METAL        | 12K 1% 1/4W    | C50      | 1-124-907-11 | ELECT 10MF         | 20% 50V    |
| R320   | 1-216-430-11 | METAL OXIDE  | 390 5% 1W F    | C51      | 1-123-875-11 | ELECT 10MF         | 20% 50V    |
| R321   | 1-249-405-11 | CARBON       | 100 5% 1/4W    | C52      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R322   | 1-249-405-11 | CARBON       | 100 5% 1/4W    | C53      | 1-123-875-11 | ELECT 10MF         | 20% 50V    |
| R323   | 1-215-405-00 | METAL        | 220 1% 1/4W    | C54      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R324   | 1-249-405-11 | CARBON       | 100 5% 1/4W    | C55      | 1-123-875-11 | ELECT 10MF         | 20% 50V    |
| R325   | 1-249-405-11 | CARBON       | 100 5% 1/4W    | C56      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R326   | 1-215-394-00 | METAL        | 75 1% 1/4W     | C60      | 1-124-478-11 | ELECT 100MF        | 20% 25V    |
| R327   | 1-215-394-00 | METAL        | 75 1% 1/4W     | C61      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R328   | 1-214-779-00 | METAL        | 120K 1% 1/4W   | C62      | 1-124-907-11 | ELECT 10MF         | 20% 50V    |
| R329   | 1-249-430-11 | CARBON       | 12K 5% 1/4W    | C63      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R330   | 1-216-443-11 | METAL OXIDE  | 56K 5% 1W F    | C64      | 1-124-477-11 | ELECT 47MF         | 20% 16V    |
| R331   | 1-249-433-11 | CARBON       | 22K 5% 1/4W    | C65      | 1-124-907-11 | ELECT 10MF         | 20% 50V    |
| R332   | 1-249-422-11 | CARBON       | 2.7K 5% 1/4W   | C66      | 1-124-907-11 | ELECT 10MF         | 20% 50V    |
| R333   | 1-249-435-11 | CARBON       | 33K 5% 1/4W    | C67      | 1-124-907-11 | ELECT 10MF         | 20% 50V    |
| R334   | 1-249-433-11 | CARBON       | 22K 5% 1/4W    | C68      | 1-124-907-11 | ELECT 10MF         | 20% 50V    |
| R335   | 1-249-426-11 | CARBON       | 5.6K 5% 1/4W   | C69      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R336   | 1-249-423-11 | CARBON       | 3.3K 5% 1/4W   | C70      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R337   | 1-247-903-00 | CARBON       | 1M 5% 1/4W     | C71      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R338   | 1-249-426-11 | CARBON       | 5.6K 5% 1/4W   | C72      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R339   | 1-215-441-00 | METAL        | 6.8K 1% 1/4W   | C73      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R340   | 1-249-405-11 | CARBON       | 100 5% 1/4W    | C74      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R341   | 1-249-413-11 | CARBON       | 470 5% 1/4W    | C75      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R342   | 1-249-390-11 | CARBON       | 5.6 5% 1/4W    | C76      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| R343   | 1-249-422-11 | CARBON       | 2.7K 5% 1/4W   | C77      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| *****  |              |              |                |          |              |                    |            |
| *A-1135-606-B BT BOARD, COMPLETE (BVM-1911 ONLY) |              |              |                | C78      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| *****  |              |              |                | C79      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| *****  |              |              |                | C80      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| *****  |              |              |                | C81      | 1-123-875-11 | ELECT 10MF         | 20% 50V    |
| *****  |              |              |                | C82      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| *4-353-708-00 HOOK, FINGER                       |              |              |                | C83      | 1-123-875-11 | ELECT 10MF         | 20% 50V    |
| <CAPACITOR>                                      |              |              |                | C84      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
|  |              |              |                | C85      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
|  |              |              |                | C86      | 1-123-875-11 | ELECT 10MF         | 20% 50V    |
|  |              |              |                | C87      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| C1   | 1-124-477-11 | ELECT        | 47MF 20% 16V   | C88      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| C3   | 1-124-477-11 | ELECT        | 47MF 20% 16V   | C89      | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| C4   | 1-124-477-11 | ELECT        | 47MF 20% 16V   | C90      | 1-124-907-11 | ELECT 10MF         | 20% 50V    |
| C5   | 1-163-038-00 | CERAMIC CHIP | 0.1MF 25V      | C100     | 1-124-478-11 | ELECT 100MF        | 20% 25V    |
| C6   | 1-124-477-11 | ELECT        | 47MF 20% 16V   | C101     | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| C9   | 1-163-369-11 | CERAMIC CHIP | 47PR 5% 50V    | C102     | 1-124-907-11 | ELECT 10MF         | 20% 50V    |
| C10  | 1-163-038-00 | CERAMIC CHIP | 0.1MF 25V      | C103     | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| C14  | 1-163-101-00 | CERAMIC CHIP | 22PR 5% 50V    | C104     | 1-124-477-11 | ELECT 47MF         | 20% 16V    |
| C15  | 1-163-038-00 | CERAMIC CHIP | 0.1MF 25V      | C105     | 1-124-907-11 | ELECT 10MF         | 20% 50V    |
| C16  | 1-163-227-11 | CERAMIC CHIP | 10PF 0.5PF 50V | C106     | 1-124-907-11 | ELECT 10MF         | 20% 50V    |
| C17  | 1-163-093-00 | CERAMIC CHIP | 10PF 5% 50V    | C107     | 1-124-907-11 | ELECT 10MF         | 20% 50V    |
| C18  | 1-163-038-00 | CERAMIC CHIP | 0.1MF 25V      | C108     | 1-124-907-11 | ELECT 10MF         | 20% 50V    |
| C19  | 1-163-038-00 | CERAMIC CHIP | 0.1MF 25V      | C109     | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| C20  | 1-163-038-00 | CERAMIC CHIP | 0.1MF 25V      | C110     | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| C21  | 1-163-038-00 | CERAMIC CHIP | 0.1MF 25V      | C111     | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V        |
| C22  | 1-163-099-00 | CERAMIC CHIP | 18PF 5% 50V    |          |              |                    |            |





| REF.NO.      | PART NO.     | DESCRIPTION             | REMARK | REF.NO.    | PART NO.     | DESCRIPTION          | REMARK           |  |
|--------------|--------------|-------------------------|--------|------------|--------------|----------------------|------------------|--|
| L9           | 1-410-204-31 | INDUCTOR CHIP           | 10UH   | Q82        | 8-729-901-01 | TRANSISTOR DTC144EK  |                  |  |
| L10          | 1-408-419-00 | INDUCTOR                | 68UH   | Q83        | 8-729-901-06 | TRANSISTOR DTA144EK  |                  |  |
| L11          | 1-410-200-31 | INDUCTOR CHIP           | 4.7UH  | Q84        | 8-729-901-06 | TRANSISTOR DTA144EK  |                  |  |
| L12          | 1-410-200-31 | INDUCTOR CHIP           | 4.7UH  | Q85        | 8-729-140-97 | TRANSISTOR 2SB734-34 |                  |  |
| L13          | 1-410-196-11 | INDUCTOR CHIP           | 2.2UH  | Q86        | 8-729-140-96 | TRANSISTOR 2SD774-34 |                  |  |
| L14          | 1-410-204-31 | INDUCTOR CHIP           | 10UH   | <RESISTOR> |              |                      |                  |  |
| L15          | 1-410-216-31 | INDUCTOR CHIP           | 100UH  | JW1        | 1-216-295-00 | METAL GLAZE          | 0 5% 1/10W       |  |
| <TRANSISTOR> |              |                         |        | JW2        | 1-216-295-00 | METAL GLAZE          | 0 5% 1/10W       |  |
| Q1           | 8-729-216-22 | TRANSISTOR 2SA1162-G    |        | JW3        | 1-216-295-00 | METAL GLAZE          | 0 5% 1/10W       |  |
| Q2           | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | JW5        | 1-216-295-00 | METAL GLAZE          | 0 5% 1/10W       |  |
| Q3           | 8-729-122-63 | TRANSISTOR 2SA1226-E4   |        | JW11       | 1-216-295-00 | METAL GLAZE          | 0 5% 1/10W       |  |
| Q4           | 8-729-175-72 | TRANSISTOR 2SC2757-T33  |        | JW12       | 1-216-295-00 | METAL GLAZE          | 0 5% 1/10W       |  |
| Q5           | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | JW13       | 1-216-295-00 | METAL GLAZE          | 0 5% 1/10W       |  |
| Q6           | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | JW14       | 1-216-295-00 | METAL GLAZE          | 0 5% 1/10W       |  |
| Q7           | 8-729-122-63 | TRANSISTOR 2SA1226-E4   |        | JW15       | 1-216-295-00 | METAL GLAZE          | 0 5% 1/10W       |  |
| Q8           | 8-729-216-22 | TRANSISTOR 2SA1162-G    |        | R1         | 1-216-025-00 | METAL GLAZE          | 100 5% 1/10W     |  |
| Q9           | 8-729-122-63 | TRANSISTOR 2SA1226-E4   |        | R2         | 1-216-073-00 | METAL GLAZE          | 10K 5% 1/10W     |  |
| Q10          | 8-729-175-72 | TRANSISTOR 2SC2757-T33  |        | R3         | 1-216-097-00 | METAL GLAZE          | 100K 5% 1/10W    |  |
| Q11          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R4         | 1-216-073-00 | METAL GLAZE          | 10K 5% 1/10W     |  |
| Q12          | 8-729-122-63 | TRANSISTOR 2SA1226-E4   |        | R5         | 1-216-097-00 | METAL GLAZE          | 100K 5% 1/10W    |  |
| Q13          | 8-729-175-72 | TRANSISTOR 2SC2757-T33  |        | R6         | 1-216-025-00 | METAL GLAZE          | 100 5% 1/10W     |  |
| Q14          | 8-729-175-72 | TRANSISTOR 2SC2757-T33  |        | R7         | 1-216-075-00 | METAL GLAZE          | 12K 5% 1/10W     |  |
| Q15          | 8-729-216-22 | TRANSISTOR 2SA1162-G    |        | R8         | 1-216-643-11 | METAL CHIP           | 470 0.50% 1/10W  |  |
| Q16          | 8-729-107-46 | TRANSISTOR 2SC3624A-L15 |        | R9         | 1-216-661-11 | METAL CHIP           | 2.7K 0.50% 1/10W |  |
| Q17          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R10        | 1-216-643-11 | METAL CHIP           | 470 0.50% 1/10W  |  |
| Q18          | 8-729-216-22 | TRANSISTOR 2SA1162-G    |        | R11        | 1-216-661-11 | METAL CHIP           | 2.7K 0.50% 1/10W |  |
| Q19          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R12        | 1-216-675-11 | METAL CHIP           | 10K 0.50% 1/10W  |  |
| Q20          | 8-729-175-72 | TRANSISTOR 2SC2757-T33  |        | R13        | 1-216-049-00 | METAL GLAZE          | 1K 5% 1/10W      |  |
| Q21          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R14        | 1-216-663-11 | METAL CHIP           | 3.3K 0.50% 1/10W |  |
| Q22          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R15        | 1-216-073-00 | METAL GLAZE          | 10K 5% 1/10W     |  |
| Q23          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R16        | 1-216-025-00 | METAL GLAZE          | 100 5% 1/10W     |  |
| Q24          | 8-729-216-22 | TRANSISTOR 2SA1162-G    |        | R17        | 1-216-075-00 | METAL GLAZE          | 12K 5% 1/10W     |  |
| Q25          | 8-729-107-46 | TRANSISTOR 2SC3624A-L15 |        | R18        | 1-216-025-00 | METAL GLAZE          | 100 5% 1/10W     |  |
| Q32          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R19        | 1-216-025-00 | METAL GLAZE          | 100 5% 1/10W     |  |
| Q33          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R20        | 1-216-025-00 | METAL GLAZE          | 100 5% 1/10W     |  |
| Q34          | 8-729-216-22 | TRANSISTOR 2SA1162-G    |        | R21        | 1-216-073-00 | METAL GLAZE          | 10K 5% 1/10W     |  |
| Q35          | 8-729-216-22 | TRANSISTOR 2SA1162-G    |        | R22        | 1-216-057-00 | METAL GLAZE          | 2.2K 5% 1/10W    |  |
| Q36          | 8-729-122-63 | TRANSISTOR 2SA1226-E4   |        | R23        | 1-216-635-11 | METAL CHIP           | 220 0.50% 1/10W  |  |
| Q37          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R24        | 1-216-635-11 | METAL CHIP           | 220 0.50% 1/10W  |  |
| Q38          | 8-729-122-63 | TRANSISTOR 2SA1226-E4   |        | R25        | 1-216-075-00 | METAL GLAZE          | 12K 5% 1/10W     |  |
| Q39          | 8-729-175-72 | TRANSISTOR 2SC2757-T33  |        | R26        | 1-216-059-00 | METAL GLAZE          | 2.7K 5% 1/10W    |  |
| Q40          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R27        | 1-216-057-00 | METAL GLAZE          | 2.2K 5% 1/10W    |  |
| Q41          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R28        | 1-216-025-00 | METAL GLAZE          | 100 5% 1/10W     |  |
| Q42          | 8-729-216-22 | TRANSISTOR 2SA1162-G    |        | R29        | 1-216-065-00 | METAL GLAZE          | 4.7K 5% 1/10W    |  |
| Q43          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R30        | 1-216-651-11 | METAL CHIP           | 1K 0.50% 1/10W   |  |
| Q44          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R31        | 1-216-025-00 | METAL GLAZE          | 100 5% 1/10W     |  |
| Q45          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R33        | 1-216-665-11 | METAL CHIP           | 3.9K 0.50% 1/10W |  |
| Q52          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R34        | 1-216-049-00 | METAL GLAZE          | 1K 5% 1/10W      |  |
| Q54          | 8-729-216-22 | TRANSISTOR 2SA1162-G    |        | R35        | 1-216-651-11 | METAL CHIP           | 1K 0.50% 1/10W   |  |
| Q56          | 8-729-122-63 | TRANSISTOR 2SA1226-E4   |        | R36        | 1-216-065-00 | METAL GLAZE          | 4.7K 5% 1/10W    |  |
| Q57          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R37        | 1-216-025-00 | METAL GLAZE          | 100 5% 1/10W     |  |
| Q58          | 8-729-122-63 | TRANSISTOR 2SA1226-E4   |        | R38        | 1-216-059-00 | METAL GLAZE          | 2.7K 5% 1/10W    |  |
| Q59          | 8-729-175-72 | TRANSISTOR 2SC2757-T33  |        | R39        | 1-216-635-11 | METAL CHIP           | 220 0.50% 1/10W  |  |
| Q60          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R40        | 1-216-630-11 | METAL CHIP           | 130 0.50% 1/10W  |  |
| Q61          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R41        | 1-216-630-11 | METAL CHIP           | 130 0.50% 1/10W  |  |
| Q62          | 8-729-216-22 | TRANSISTOR 2SA1162-G    |        | R42        | 1-216-635-11 | METAL CHIP           | 220 0.50% 1/10W  |  |
| Q65          | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |        | R43        | 1-216-067-00 | METAL GLAZE          | 5.6K 5% 1/10W    |  |
| Q71          | 8-729-175-72 | TRANSISTOR 2SC2757-T33  |        | R44        | 1-216-049-00 | METAL GLAZE          | 1K 5% 1/10W      |  |
| Q72          | 8-729-122-63 | TRANSISTOR 2SA1226-E4   |        | R45        | 1-216-651-11 | METAL CHIP           | 1K 0.50% 1/10W   |  |
| Q73          | 8-729-175-72 | TRANSISTOR 2SC2757-T33  |        | R46        | 1-216-065-00 | METAL GLAZE          | 4.7K 5% 1/10W    |  |
| Q74          | 8-729-122-63 | TRANSISTOR 2SA1226-E4   |        | R47        | 1-216-025-00 | METAL GLAZE          | 100 5% 1/10W     |  |
| Q81          | 8-729-901-06 | TRANSISTOR DTA144EK     |        |            |              |                      |                  |  |

| REF. NO. | PART NO.     | DESCRIPTION | REMARK           | REF. NO. | PART NO.     | DESCRIPTION | REMARK           |
|----------|--------------|-------------|------------------|----------|--------------|-------------|------------------|
| R48      | 1-216-057-00 | METAL GLAZE | 2.2K 5% 1/10W    | R125     | 1-216-659-11 | METAL CHIP  | 2.2K 0.50% 1/10W |
| R49      | 1-216-057-00 | METAL GLAZE | 2.2K 5% 1/10W    | R126     | 1-216-065-00 | METAL GLAZE | 4.7K 5% 1/10W    |
| R50      | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     | R127     | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     |
| R51      | 1-216-097-00 | METAL GLAZE | 100K 5% 1/10W    | R128     | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W     |
| R52      | 1-216-097-00 | METAL GLAZE | 100K 5% 1/10W    | R129     | 1-216-643-11 | METAL CHIP  | 470 0.50% 1/10W  |
| R53      | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     | R130     | 1-216-659-11 | METAL CHIP  | 2.2K 0.50% 1/10W |
| R54      | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     | R131     | 1-216-065-00 | METAL GLAZE | 4.7K 5% 1/10W    |
| R55      | 1-216-667-11 | METAL CHIP  | 4.7K 0.50% 1/10W | R132     | 1-216-651-11 | METAL CHIP  | 1K 0.50% 1/10W   |
| R56      | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     | R133     | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     |
| R57      | 1-216-065-00 | METAL GLAZE | 4.7K 5% 1/10W    | R134     | 1-216-057-00 | METAL GLAZE | 2.2K 5% 1/10W    |
| R58      | 1-216-651-11 | METAL CHIP  | 1K 0.50% 1/10W   | R135     | 1-216-635-11 | METAL CHIP  | 220 0.50% 1/10W  |
| R59      | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     | R136     | 1-216-635-11 | METAL CHIP  | 220 0.50% 1/10W  |
| R60      | 1-216-065-00 | METAL GLAZE | 4.7K 5% 1/10W    | R137     | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     |
| R61      | 1-216-643-11 | METAL CHIP  | 470 0.50% 1/10W  | R138     | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     |
| R62      | 1-216-643-11 | METAL CHIP  | 470 0.50% 1/10W  | R139     | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     |
| R63      | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     | R140     | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     |
| R64      | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     | R141     | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     |
| R65      | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     | R142     | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     |
| R66      | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W     | R143     | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     |
| R67      | 1-216-659-11 | METAL CHIP  | 2.2K 0.50% 1/10W | R150     | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     |
| R68      | 1-216-667-11 | METAL CHIP  | 4.7K 0.50% 1/10W | R153     | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      |
| R69      | 1-216-659-11 | METAL CHIP  | 2.2K 0.50% 1/10W | R154     | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     |
| R70      | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     | R157     | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      |
| R71      | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     | R158     | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     |
| R72      | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     | R161     | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      |
| R73      | 1-216-643-11 | METAL CHIP  | 470 0.50% 1/10W  | R163     | 1-216-057-00 | METAL GLAZE | 2.2K 5% 1/10W    |
| R74      | 1-216-651-11 | METAL CHIP  | 1K 0.50% 1/10W   | R164     | 1-216-057-00 | METAL GLAZE | 2.2K 5% 1/10W    |
| R75      | 1-216-089-00 | METAL GLAZE | 47K 5% 1/10W     | R165     | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     |
| R76      | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W     | R166     | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     |
| R77      | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      | R167     | 1-216-643-11 | METAL CHIP  | 470 0.50% 1/10W  |
| R78      | 1-216-065-00 | METAL GLAZE | 4.7K 5% 1/10W    | R169     | 1-216-655-11 | METAL CHIP  | 1.5K 0.50% 1/10W |
| R79      | 1-216-651-11 | METAL CHIP  | 1K 0.50% 1/10W   | R170     | 1-216-643-11 | METAL CHIP  | 470 0.50% 1/10W  |
| R80      | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     | R171     | 1-216-657-11 | METAL CHIP  | 1.8K 0.50% 1/10W |
| R81      | 1-216-065-00 | METAL GLAZE | 4.7K 5% 1/10W    | R172     | 1-216-667-11 | METAL CHIP  | 4.7K 0.50% 1/10W |
| R82      | 1-216-651-11 | METAL CHIP  | 1K 0.50% 1/10W   | R173     | 1-216-065-00 | METAL GLAZE | 4.7K 5% 1/10W    |
| R83      | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     | R174     | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      |
| R84      | 1-216-097-00 | METAL GLAZE | 100K 5% 1/10W    | R175     | 1-216-655-11 | METAL CHIP  | 1.5K 0.50% 1/10W |
| R85      | 1-216-097-00 | METAL GLAZE | 100K 5% 1/10W    | R176     | 1-216-065-00 | METAL GLAZE | 4.7K 5% 1/10W    |
| R86      | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     | R177     | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     |
| R87      | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     | R178     | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     |
| R88      | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     | R179     | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     |
| R89      | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     | R181     | 1-216-065-00 | METAL GLAZE | 4.7K 5% 1/10W    |
| R103     | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      | R182     | 1-216-651-11 | METAL CHIP  | 1K 0.50% 1/10W   |
| R104     | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     | R183     | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     |
| R105     | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      | R184     | 1-216-065-00 | METAL GLAZE | 4.7K 5% 1/10W    |
| R106     | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     | R185     | 1-216-643-11 | METAL CHIP  | 470 0.50% 1/10W  |
| R107     | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      | R186     | 1-216-643-11 | METAL CHIP  | 470 0.50% 1/10W  |
| R108     | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     | R191     | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     |
| R109     | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      | R192     | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     |
| R110     | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     | R193     | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     |
| R111     | 1-216-651-11 | METAL CHIP  | 1K 0.50% 1/10W   | R201     | 1-216-057-00 | METAL GLAZE | 2.2K 5% 1/10W    |
| R112     | 1-216-651-11 | METAL CHIP  | 1K 0.50% 1/10W   | R202     | 1-216-057-00 | METAL GLAZE | 2.2K 5% 1/10W    |
| R113     | 1-216-057-00 | METAL GLAZE | 2.2K 5% 1/10W    | R203     | 1-216-057-00 | METAL GLAZE | 2.2K 5% 1/10W    |
| R114     | 1-216-057-00 | METAL GLAZE | 2.2K 5% 1/10W    | R204     | 1-216-033-00 | METAL GLAZE | 220 5% 1/10W     |
| R115     | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W     | R205     | 1-216-033-00 | METAL GLAZE | 220 5% 1/10W     |
| R116     | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W     | R206     | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      |
| R117     | 1-216-643-11 | METAL CHIP  | 470 0.50% 1/10W  | R207     | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      |
| R118     | 1-216-663-11 | METAL CHIP  | 3.3K 0.50% 1/10W | R208     | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      |
| R119     | 1-216-651-11 | METAL CHIP  | 1K 0.50% 1/10W   | R209     | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      |
| R120     | 1-216-643-11 | METAL CHIP  | 470 0.50% 1/10W  | R210     | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      |
| R121     | 1-216-657-11 | METAL CHIP  | 1.8K 0.50% 1/10W | R211     | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      |
| R122     | 1-216-667-11 | METAL CHIP  | 4.7K 0.50% 1/10W | R212     | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      |
| R123     | 1-216-065-00 | METAL GLAZE | 4.7K 5% 1/10W    | R213     | 1-216-089-00 | METAL GLAZE | 47K 5% 1/10W     |
| R124     | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W      |          |              |             |                  |

**BT**   **PB**   **QA**   **QB**   **GC**

| REF. NO. | PART NO.            | DESCRIPTION                |         |     |       | REMARK | REF. NO. | PART NO.      | DESCRIPTION   |        |        |      | REMARK |
|----------|---------------------|----------------------------|---------|-----|-------|--------|----------|---------------|---------------|--------|--------|------|--------|
| R214     | 1-216-089-00        | METAL GLAZE                | 47K     | 5%  | 1/10W |        | C2       | 1-126-235-11  | ELECT         | 100MF  | 20%    | 16V  |        |
| R215     | 1-216-053-00        | METAL GLAZE                | 1.5K    | 5%  | 1/10W |        | C3       | 1-101-004-00  | CERAMIC       | 0.01MF | 50V    |      |        |
| R216     | 1-216-061-00        | METAL GLAZE                | 3.3K    | 5%  | 1/10W |        | C4       | 1-108-692-11  | MYLAR         | 0.01MF | 10%    | 200V |        |
| R217     | 1-216-069-00        | METAL GLAZE                | 6.8K    | 5%  | 1/10W |        | C5       | 1-126-235-11  | ELECT         | 100MF  | 20%    | 16V  |        |
| R218     | 1-216-061-00        | METAL GLAZE                | 3.3K    | 5%  | 1/10W |        | C6       | 1-101-004-00  | CERAMIC       | 0.01MF | 50V    |      |        |
| R219     | 1-215-881-11        | METAL OXIDE                | 15      | 5%  | 2W    | F      | C7       | 1-108-692-11  | MYLAR         | 0.01MF | 10%    | 200V |        |
| R331     | 1-216-121-00        | METAL GLAZE                | 1M      | 5%  | 1/10W |        | C8       | 1-126-235-11  | ELECT         | 100MF  | 20%    | 16V  |        |
| R332     | 1-216-288-11        | METAL GLAZE                | 5.6M    | 5%  | 1/8W  |        | C9       | 1-101-004-00  | CERAMIC       | 0.01MF | 50V    |      |        |
| R341     | 1-216-121-00        | METAL GLAZE                | 1M      | 5%  | 1/10W |        | C10      | 1-102-951-00  | CERAMIC       | 15PF   | 5%     | 50V  |        |
| R342     | 1-216-288-11        | METAL GLAZE                | 5.6M    | 5%  | 1/8W  |        | C11      | 1-102-951-00  | CERAMIC       | 15PF   | 5%     | 50V  |        |
| R361     | 1-216-121-00        | METAL GLAZE                | 1M      | 5%  | 1/10W |        | C12      | 1-102-951-00  | CERAMIC       | 15PF   | 5%     | 50V  |        |
| R362     | 1-216-288-11        | METAL GLAZE                | 5.6M    | 5%  | 1/8W  |        |          | <RESISTOR>    |               |        |        |      |        |
| R501     | 1-216-121-00        | METAL GLAZE                | 1M      | 5%  | 1/10W |        | R1       | 1-215-449-00  | METAL         | 15K    | 1%     | 1/4W |        |
| R502     | 1-216-049-00        | METAL GLAZE                | 1K      | 5%  | 1/10W |        | R2       | 1-215-449-00  | METAL         | 15K    | 1%     | 1/4W |        |
|          | <VARIABLE RESISTOR> |                            |         |     |       |        | R3       | 1-249-439-11  | CARBON        | 68K    | 5%     | 1/4W |        |
| RV1      | 1-237-515-21        | RES, ADJ, CERMET           | 1K      |     |       |        |          | <SWITCH>      |               |        |        |      |        |
| RV2      | 1-237-517-21        | RES, ADJ, CERMET           | 5K      |     |       |        | S1       | 1-570-857-11  | SWITCH, SLIDE |        |        |      |        |
| RV3      | 1-237-515-21        | RES, ADJ, CERMET           | 1K      |     |       |        | S2       | 1-570-857-11  | SWITCH, SLIDE |        |        |      |        |
| RV4      | 1-237-515-21        | RES, ADJ, CERMET           | 1K      |     |       |        | S3       | 1-570-857-11  | SWITCH, SLIDE |        |        |      |        |
| RV5      | 1-237-515-21        | RES, ADJ, CERMET           | 1K      |     |       |        |          | *****         |               |        |        |      |        |
| RV6      | 1-237-517-21        | RES, ADJ, CERMET           | 5K      |     |       |        |          | *1-618-786-11 | QB BOARD      |        |        |      |        |
| RV7      | 1-237-515-21        | RES, ADJ, CERMET           | 1K      |     |       |        |          | *****         |               |        |        |      |        |
| RV8      | 1-237-515-21        | RES, ADJ, CERMET           | 1K      |     |       |        |          |               |               |        |        |      |        |
| RV9      | 1-237-516-21        | RES, ADJ, CERMET           | 2K      |     |       |        |          |               |               |        |        |      |        |
| RV10     | 1-237-515-21        | RES, ADJ, CERMET           | 1K      |     |       |        |          |               |               |        |        |      |        |
| RV11     | 1-237-516-21        | RES, ADJ, CERMET           | 2K      |     |       |        |          | <CAPACITOR>   |               |        |        |      |        |
| RV12     | 1-237-515-21        | RES, ADJ, CERMET           | 1K      |     |       |        |          | C1            | 1-108-692-11  | MYLAR  | 0.01MF | 10%  | 200V   |
|          | <CRYSTAL>           |                            |         |     |       |        | C2       | 1-126-235-11  | ELECT         | 100MF  | 20%    | 16V  |        |
| X1       | 1-567-790-11        | VIBRATOR, CRYSTAL          |         |     |       |        | C3       | 1-101-004-00  | CERAMIC       | 0.01MF | 50V    |      |        |
|          | *****               |                            |         |     |       |        | C4       | 1-108-692-11  | MYLAR         | 0.01MF | 10%    | 200V |        |
|          | *****               |                            |         |     |       |        | C5       | 1-126-235-11  | ELECT         | 100MF  | 20%    | 16V  |        |
|          | *1-617-891-21       | PB BOARD                   |         |     |       |        | C6       | 1-101-004-00  | CERAMIC       | 0.01MF | 50V    |      |        |
|          | *****               |                            |         |     |       |        | C7       | 1-108-692-11  | MYLAR         | 0.01MF | 10%    | 200V |        |
|          | <CAPACITOR>         |                            |         |     |       |        | C8       | 1-126-235-11  | ELECT         | 100MF  | 20%    | 16V  |        |
| C1       | 1-130-959-00        | FILM                       | 0.047MF | 10% | 400V  |        | C9       | 1-101-004-00  | CERAMIC       | 0.01MF | 50V    |      |        |
| C2       | 1-130-959-00        | FILM                       | 0.047MF | 10% | 400V  |        | C10      | 1-102-951-00  | CERAMIC       | 15PF   | 5%     | 50V  |        |
|          | <CONNECTOR>         |                            |         |     |       |        |          | <RESISTOR>    |               |        |        |      |        |
| PB1      | *1-508-766-00       | PIN, CONNECTOR (5MM PITCH) | 4P      |     |       |        | R1       | 1-215-449-00  | METAL         | 15K    | 1%     | 1/4W |        |
|          | <RESISTOR>          |                            |         |     |       |        | R2       | 1-215-449-00  | METAL         | 15K    | 1%     | 1/4W |        |
| R1       | 1-215-426-00        | METAL                      | 1.6K    | 1%  | 1/4W  |        | R3       | 1-215-449-00  | METAL         | 15K    | 1%     | 1/4W |        |
| R2       | 1-215-438-00        | METAL                      | 5.1K    | 1%  | 1/4W  |        |          | <SWITCH>      |               |        |        |      |        |
| R3       | 1-215-426-00        | METAL                      | 1.6K    | 1%  | 1/4W  |        | S1       | 1-570-857-11  | SWITCH, SLIDE |        |        |      |        |
| R4       | 1-215-438-00        | METAL                      | 5.1K    | 1%  | 1/4W  |        | S2       | 1-570-857-11  | SWITCH, SLIDE |        |        |      |        |
| R5       | 1-215-438-00        | METAL                      | 5.1K    | 1%  | 1/4W  |        | S3       | 1-570-857-11  | SWITCH, SLIDE |        |        |      |        |
| R6       | 1-215-438-00        | METAL                      | 5.1K    | 1%  | 1/4W  |        |          | *****         |               |        |        |      |        |
|          | *****               |                            |         |     |       |        |          | *1-617-885-12 | GC BOARD      |        |        |      |        |
|          | *****               |                            |         |     |       |        |          | *****         |               |        |        |      |        |
|          | *1-617-895-11       | QA BOARD                   |         |     |       |        |          | <CAPACITOR>   |               |        |        |      |        |
|          | *****               |                            |         |     |       |        |          | C1            | 1-126-233-11  | ELECT  | 22MF   | 20%  | 25V    |
|          | <CAPACITOR>         |                            |         |     |       |        |          | C2            | 1-126-233-11  | ELECT  | 22MF   | 20%  | 25V    |
| C1       | 1-108-692-11        | MYLAR                      | 0.01MF  | 10% | 200V  |        |          | C3            | 1-126-233-11  | ELECT  | 22MF   | 20%  | 25V    |

**GC**    **GA**

Les composants identifiés par une trame et une marque **A** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

| REF. NO.   | PART NO.      | DESCRIPTION       | REMARK               | REF. NO. | PART NO.     | DESCRIPTION  | REMARK         |          |          |      |      |
|--|---------------|-------------------|----------------------|----------|--------------|--------------|----------------|----------|----------|------|------|
| C4   | 1-126-233-11  | ELECT             | 22MF                 | 20%      | 25V          | C15          | 1-124-360-00   | ELECT    | 1000MF   | 20%  | 16V  |
| C5   | 1-126-233-11  | ELECT             | 22MF                 | 20%      | 25V          | C16          | 1-126-103-11   | ELECT    | 470MF    | 20%  | 16V  |
| C6   | 1-126-233-11  | ELECT             | 22MF                 | 20%      | 25V          | C17          | 1-106-375-12   | MYLAR    | 0.022MF  | 10%  | 100V |
| C7   | 1-126-233-11  | ELECT             | 22MF                 | 20%      | 25V          | C18          | 1-108-638-11   | MYLAR    | 0.1MF    | 10%  | 100V |
| C8   | 1-126-233-11  | ELECT             | 22MF                 | 20%      | 25V          | C19          | 1-102-030-00   | CERAMIC  | 330PF    | 10%  | 500V |
| C9   | 1-126-233-11  | ELECT             | 22MF                 | 20%      | 25V          | C20          | 1-162-117-00   | CERAMIC  | 100PF    | 10%  | 500V |
| C12  | 1-101-004-00  | CERAMIC           | 0.01MF               | 50V      |              |              |                |          |          |      |      |
| C14  | 1-101-004-00  | CERAMIC           | 0.01MF               | 50V      | C21          | 1-102-038-00 | CERAMIC        | 0.001MF  |          | 500V |      |
| C16  | 1-101-004-00  | CERAMIC           | 0.01MF               | 50V      | C22          | 1-162-117-00 | CERAMIC        | 100PF    | 10%      | 500V |      |
| C17  | 1-101-004-00  | CERAMIC           | 0.01MF               | 50V      | C23          | 1-106-375-12 | MYLAR          | 0.022MF  | 10%      | 100V |      |
| C18  | 1-101-004-00  | CERAMIC           | 0.01MF               | 50V      | C24          | 1-108-638-11 | MYLAR          | 0.1MF    | 10%      | 100V |      |
|  |               |                   |                      | C25      | 1-124-791-11 | ELECT        | 1MF            | 20%      | 50V      |      |      |
|  |               |                   |                      | C26      | 1-101-361-00 | CERAMIC      | 150PF          | 5%       | 50V      |      |      |
|  |               |                   |                      | C27      | 1-101-361-00 | CERAMIC      | 150PF          | 5%       | 50V      |      |      |
| GC1  | *1-566-044-11 | PIN, CONNECTOR 5P |                      |          | C28          | 1-124-915-11 | ELECT          | 10MF     | 20%      | 16V  |      |
| GC2  | *1-566-057-11 | PIN, CONNECTOR 5P |                      |          | C29          | 1-124-910-11 | ELECT          | 47MF     | 20%      | 25V  |      |
| GC3  | *1-566-044-11 | PIN, CONNECTOR 5P |                      |          | C30          | 1-162-117-00 | CERAMIC        | 100PF    | 10%      | 500V |      |
|  |               |                   |                      | C31      | 1-102-030-00 | CERAMIC      | 330PF          | 10%      | 500V     |      |      |
|  |               |                   |                      | C32      | 1-124-791-11 | ELECT        | 1MF            | 20%      | 50V      |      |      |
|  |               |                   |                      | C33      | 1-101-361-00 | CERAMIC      | 150PF          | 5%       | 50V      |      |      |
|  |               |                   |                      | C34      | 1-101-361-00 | CERAMIC      | 150PF          | 5%       | 50V      |      |      |
|  |               |                   |                      | C35      | 1-124-791-11 | ELECT        | 1MF            | 20%      | 50V      |      |      |
| IC1  | 8-759-929-65  | IC LM7912CT       |                      |          | C36          | 1-124-910-11 | ELECT          | 47MF     | 20%      | 25V  |      |
| IC2  | 8-759-929-65  | IC LM7912CT       |                      |          | C37          | 1-130-734-00 | FILM           | 0.0068MF | 5%       | 50V  |      |
| IC3  | 8-759-701-79  | IC NJM7812FA      |                      |          | C38          | 1-136-165-00 | FILM           | 0.1MF    | 5%       | 50V  |      |
| IC4  | 8-759-701-79  | IC NJM7812FA      |                      |          | C39          | 1-136-165-00 | FILM           | 0.1MF    | 5%       | 50V  |      |
|  |               |                   |                      | C40      | 1-123-381-00 | ELECT        | 2.2MF          | 20%      | 50V      |      |      |
| *****  |               |                   |                      |          |              |              |                |          |          |      |      |
| *A-1316-089-A GA BOARD, COMPLETE (BVM-1911 ONLY) |               |                   |                      |          |              |              |                |          |          |      |      |
|  |               |                   |                      | C41      | 1-102-038-00 | CERAMIC      | 0.001MF        |          | 500V     |      |      |
|  |               |                   |                      | C42      | 1-136-165-00 | FILM         | 0.1MF          | 5%       | 50V      |      |      |
|  |               |                   | (INCLUDING GB BOARD) | C43      | 1-136-165-00 | FILM         | 0.1MF          | 5%       | 50V      |      |      |
|  |               |                   |                      | C44      | 1-124-915-11 | ELECT        | 10MF           | 20%      | 16V      |      |      |
|  |               |                   |                      | C45      | 1-162-132-00 | CERAMIC      | 270PF          | 10%      | 2KV      |      |      |
|  |               |                   |                      | C46      | 1-124-915-11 | ELECT        | 10MF           | 20%      | 16V      |      |      |
|  |               |                   |                      | C47      | 1-136-173-00 | FILM         | 0.47MF         | 5%       | 50V      |      |      |
|  |               |                   |                      | C48      | 1-136-173-00 | FILM         | 0.47MF         | 5%       | 50V      |      |      |
|  |               |                   |                      | C49      | 1-124-915-11 | ELECT        | 10MF           | 20%      | 16V      |      |      |
|  |               |                   |                      | C50      | 1-101-006-00 | CERAMIC      | 0.047MF        |          | 50V      |      |      |
|  |               |                   |                      | C51      | 1-101-006-00 | CERAMIC      | 0.047MF        |          | 50V      |      |      |
|  |               |                   |                      | C52      | 1-101-006-00 | CERAMIC      | 0.047MF        |          | 50V      |      |      |
|  |               |                   |                      | C53      | 1-101-006-00 | CERAMIC      | 0.047MF        |          | 50V      |      |      |
|  |               |                   |                      | C54      | 1-101-006-00 | CERAMIC      | 0.047MF        |          | 50V      |      |      |
|  |               |                   |                      | C55      | 1-124-915-11 | ELECT        | 10MF           | 20%      | 16V      |      |      |
|  |               |                   |                      | C56      | 1-136-201-11 | FILM         | 0.22MF         | 5%       | 400V     |      |      |
|  |               |                   |                      | C57      | 1-124-915-11 | ELECT        | 10MF           | 20%      | 25V      |      |      |
|  |               |                   |                      | C58      | 1-123-379-00 | ELECT        | 0.47MF         | 20%      | 50V      |      |      |
|  |               |                   |                      | C59      | 1-130-734-00 | FILM         | 0.0068MF       | 5%       | 50V      |      |      |
|  |               |                   |                      | C60      | 1-102-228-00 | CERAMIC      | 470PF          | 10%      | 500V     |      |      |
|  |               |                   |                      | C61      | 1-102-228-00 | CERAMIC      | 470PF          | 10%      | 500V     |      |      |
|  |               |                   |                      | C62      | 1-102-228-00 | CERAMIC      | 470PF          | 10%      | 500V     |      |      |
|  |               |                   |                      | C63      | 1-102-228-00 | CERAMIC      | 470PF          | 10%      | 500V     |      |      |
|  |               |                   |                      | C64      | 1-124-024-00 | ELECT        | 4.7MF          | 20%      | 350V     |      |      |
|  |               |                   |                      | C65      | 1-124-024-00 | ELECT        | 4.7MF          | 20%      | 350V     |      |      |
| C1   | 1-124-024-00  | ELECT             | 4.7MF                | 20%      | 350V         |              |                |          |          |      |      |
| C2   | 1-124-024-00  | ELECT             | 4.7MF                | 20%      | 350V         |              |                |          |          |      |      |
| C3   | 1-162-117-00  | CERAMIC           | 100PF                | 10%      | 500V         | C66          | 1-162-117-00   | CERAMIC  | 100PF    | 10%  | 500V |
| C4   | 1-162-117-00  | CERAMIC           | 100PF                | 10%      | 500V         | C67          | 1-162-117-00   | CERAMIC  | 100PF    | 10%  | 500V |
| C5   | 1-162-117-00  | CERAMIC           | 100PF                | 10%      | 500V         | C68          | 1-162-117-00   | CERAMIC  | 100PF    | 10%  | 500V |
| C6   | 1-162-117-00  | CERAMIC           | 100PF                | 10%      | 500V         | C69          | 1-124-562-11   | ELECT    | 47MF     | 20%  | 200V |
| C7   | 1-126-104-11  | ELECT             | 470MF                | 20%      | 25V          | C70          | 1-124-171-00   | ELECT    | 100MF    | 20%  | 160V |
| C8   | 1-126-105-11  | ELECT             | 1000MF               | 20%      | 25V          | C71          | 1-162-117-00   | CERAMIC  | 100PF    | 10%  | 500V |
| C9   | 1-126-104-11  | ELECT             | 470MF                | 20%      | 25V          | C72          | 1-124-562-11   | ELECT    | 47MF     | 20%  | 200V |
| C10  | 1-126-105-11  | ELECT             | 1000MF               | 20%      | 25V          | C73          | 1-124-171-00   | ELECT    | 100MF    | 20%  | 160V |
| C11  | 1-126-104-11  | ELECT             | 470MF                | 20%      | 25V          | C74          | 1-124-122-11   | ELECT    | 100MF    | 20%  | 16V  |
| C12  | 1-124-602-00  | ELECT             | 2200MF               | 20%      | 25V          | C75          | 1-124-122-11   | ELECT    | 100MF    | 20%  | 16V  |
| C13  | 1-126-104-11  | ELECT             | 470MF                | 20%      | 25V          | C76          | ▲ 1-161-953-52 | CERAMIC  | 0.0047MF | 20%  | 400V |
| C14  | 1-124-602-00  | ELECT             | 2200MF               | 20%      | 25V          | C77          | ▲ 1-161-953-52 | CERAMIC  | 0.0047MF | 20%  | 400V |

The components identified by shading and mark  are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

GA

| REF.NO. | PART NO.       | DESCRIPTION                   |          |     | REMARK | REF.NO. | PART NO.       | DESCRIPTION                   |      |    | REMARK |
|---------|----------------|-------------------------------|----------|-----|--------|---------|----------------|-------------------------------|------|----|--------|
| C78     | 1-162-599-12   | CERAMIC                       | 0.0047MF | 20% | 400V   | GA4     | *1-508-786-00  | PIN, CONNECTOR (5MM PITCH) 2P |      |    |        |
| C79     | 1-162-599-12   | CERAMIC                       | 0.0047MF | 20% | 400V   | GA5     | *1-566-055-11  | PIN, CONNECTOR 3P             |      |    |        |
| C80     | 1-125-658-11   | ELECT                         | 560MF    | 20% | 250V   |         |                |                               |      |    |        |
| C81     | 1-125-658-11   | ELECT                         | 560MF    | 20% | 250V   | GA6     | *1-566-055-11  | PIN, CONNECTOR 3P             |      |    |        |
| C82     | 1-123-369-00   | ELECT                         | 4.7MF    | 20% | 25V    | GA7     | *1-566-058-11  | PIN, CONNECTOR 6P             |      |    |        |
| C83     | 1-101-004-00   | CERAMIC                       | 0.01MF   |     | 50V    | GA8     | *1-566-057-11  | PIN, CONNECTOR 5P             |      |    |        |
| C84     | ▲.1-136-311-51 | FILM                          | 0.47MF   | 20% | 125V   |         |                |                               |      |    | <IC>   |
| C85     | ▲.1-162-578-51 | CERAMIC                       | 0.0047MF | 20% | 400V   |         |                |                               |      |    |        |
| C86     | ▲.1-162-578-51 | CERAMIC                       | 0.0047MF | 20% | 400V   | IC1     | 1-806-805-11   | IC MC5433                     |      |    |        |
| C87     | ▲.1-162-578-51 | CERAMIC                       | 0.0047MF | 20% | 400V   | IC2     | 8-759-904-94   | IC TL494CN                    |      |    |        |
| C88     | ▲.1-162-578-51 | CERAMIC                       | 0.0047MF | 20% | 400V   | IC3     | 8-759-904-94   | IC TL494CN                    |      |    |        |
| C89     | ▲.1-136-311-51 | FILM                          | 0.47MF   | 20% | 125V   |         |                |                               |      |    | <COIL> |
| C90     | 1-136-171-00   | FILM                          | 0.033MF  | 5%  | 50V    |         |                |                               |      |    |        |
| C92     | 1-136-171-00   | FILM                          | 0.033MF  | 5%  | 50V    |         |                |                               |      |    |        |
| C94     | 1-102-038-00   | CERAMIC                       | 0.001MF  |     | 500V   | L3      | 1-459-643-11   | COIL, CHOKE 525UH             |      |    |        |
| C95     | 1-136-173-00   | FILM                          | 0.47MF   | 5%  | 50V    | L4      | 1-459-643-11   | COIL, CHOKE 525UH             |      |    |        |
| C96     | 1-102-050-00   | CERAMIC                       | 0.01MF   | 99% | 500V   | L5      | 1-459-643-11   | COIL, CHOKE 525UH             |      |    |        |
| C97     | 1-136-173-00   | FILM                          | 0.47MF   | 5%  | 50V    | L6      | 1-459-643-11   | COIL, CHOKE 525UH             |      |    |        |
| C98     | 1-136-173-00   | FILM                          | 0.47MF   | 5%  | 50V    | L7      | 1-459-207-00   | COIL, CORE                    |      |    |        |
| C99     | 1-102-050-00   | CERAMIC                       | 0.01MF   | 99% | 500V   | L8      | 1-459-644-11   | COIL, CHOKE 2.9MH             |      |    |        |
| C100    | 1-162-117-00   | CERAMIC                       | 100PF    | 10% | 500V   | L9      | 1-459-645-11   | COIL, CHOKE 20MH              |      |    |        |
| C101    | 1-162-117-00   | CERAMIC                       | 100PF    | 10% | 500V   | L10     | 1-421-329-00   | COIL, CHOKE                   |      |    |        |
| C102    | 1-136-601-11   | FILM                          | 0.01MF   | 5%  | 630V   | L11     | 1-421-329-00   | COIL, CHOKE                   |      |    |        |
| C103    | 1-136-601-11   | FILM                          | 0.01MF   | 5%  | 630V   | L12     | 1-421-329-00   | COIL, CHOKE                   |      |    |        |
|         |                |                               |          |     |        | L13     | 1-421-329-00   | COIL, CHOKE                   |      |    |        |
|         |                |                               |          |     |        | L14     | 1-421-329-00   | COIL, CHOKE                   |      |    |        |
|         |                |                               |          |     |        | L15     | 1-421-329-00   | COIL, CHOKE                   |      |    |        |
|         |                |                               |          |     |        | L16     | 1-421-329-00   | COIL, CHOKE                   |      |    |        |
| D1      | 8-719-912-51   | DIODE ESAC25-04C              |          |     |        | L17     | ▲.1-421-590-11 | TRANSFORMER, LINE FILTER      |      |    |        |
| D2      | 8-719-918-73   | DIODE ESAC25-04N              |          |     |        |         |                |                               |      |    |        |
| D3      | 8-719-901-73   | DIODE ESAD25-04D              |          |     |        | L18     | ▲.1-421-590-11 | TRANSFORMER, LINE FILTER      |      |    |        |
| D4      | 8-719-901-73   | DIODE ESAD25-04D              |          |     |        |         |                |                               |      |    |        |
| D5      | 8-719-907-24   | DIODE ESAC31-02D              |          |     |        |         |                |                               |      |    |        |
| D6      | 8-719-907-24   | DIODE ESAC31-02D              |          |     |        |         |                |                               |      |    |        |
| D7      | 8-719-300-33   | DIODE RU-3AM                  |          |     |        |         |                |                               |      |    |        |
| D8      | 8-719-300-52   | DIODE CTU-38R                 |          |     |        | Q1      | 8-729-301-76   | TRANSISTOR STR8124-R          |      |    |        |
| D9      | 8-719-300-53   | DIODE CTU-38S                 |          |     |        | Q2      | 8-729-301-76   | TRANSISTOR STR8124-R          |      |    |        |
| D10     | 8-719-912-51   | DIODE ESAC25-04C              |          |     |        | Q3      | 8-729-140-96   | TRANSISTOR 2SD774-34          |      |    |        |
| D11     | 8-719-918-73   | DIODE ESAC25-04N              |          |     |        | Q4      | 8-729-140-96   | TRANSISTOR 2SD774-34          |      |    |        |
| D12     | 8-719-911-19   | DIODE ISS119                  |          |     |        | Q5      | 8-729-140-96   | TRANSISTOR 2SD774-34          |      |    |        |
| D13     | 8-719-911-19   | DIODE ISS119                  |          |     |        | Q6      | 8-729-140-96   | TRANSISTOR 2SD774-34          |      |    |        |
| D14     | 8-719-100-58   | DIODE RD10BB3                 |          |     |        | Q7      | 8-729-140-97   | TRANSISTOR 2SB734-34          |      |    |        |
| D15     | 8-719-911-19   | DIODE ISS119                  |          |     |        | Q8      | 8-729-119-78   | TRANSISTOR 2SC2785-HFE        |      |    |        |
| D16     | 8-719-911-19   | DIODE ISS119                  |          |     |        | Q9      | 8-729-119-78   | TRANSISTOR 2SC2785-HFE        |      |    |        |
| D17     | 8-719-911-19   | DIODE ISS119                  |          |     |        | Q10     | 8-729-313-42   | TRANSISTOR 2SD1134-C          |      |    |        |
| D18     | 8-719-109-89   | DIODE RD5.6ESB2               |          |     |        |         |                |                               |      |    |        |
| D20     | 8-719-200-02   | DIODE 10E-2                   |          |     |        | Q11     | 8-729-119-76   | TRANSISTOR 2SA1175-HFE        |      |    |        |
| D21     | ▲.8-719-300-07 | DIODE RB406N                  |          |     |        | Q12     | 8-729-140-96   | TRANSISTOR 2SD774-34          |      |    |        |
| D22     | 8-759-157-40   | IC UPC574J                    |          |     |        | Q13     | 8-729-119-78   | TRANSISTOR 2SC2785-HFE        |      |    |        |
| D23     | 8-719-911-19   | DIODE ISS119                  |          |     |        | Q14     | 8-729-119-78   | TRANSISTOR 2SC2785-HFE        |      |    |        |
| D24     | 8-719-100-58   | DIODE RD10BB3                 |          |     |        |         |                |                               |      |    |        |
| D25     | 8-719-911-19   | DIODE ISS119                  |          |     |        |         |                |                               |      |    |        |
| D26     | 8-719-003-08   | THYRISTOR CR3CM-8             |          |     |        |         |                |                               |      |    |        |
| D27     | 8-719-982-04   | DIODE ERB81-004               |          |     |        | R1      | 1-215-857-11   | METAL OXIDE                   | 10   | 5% | 1W     |
| D28     | 8-719-982-04   | DIODE ERB81-004               |          |     |        | R2      | 1-215-857-11   | METAL OXIDE                   | 10   | 5% | 1W     |
| D29     | 8-719-982-04   | DIODE ERB81-004               |          |     |        | R3      | 1-247-715-11   | CARBON                        | 1.5K | 5% | 1/4W   |
| D30     | 8-719-982-04   | DIODE ERB81-004               |          |     |        | R4      | 1-215-857-11   | METAL OXIDE                   | 10   | 5% | 1W     |
| D31     | 8-719-300-33   | DIODE RU-3AM                  |          |     |        | R5      | 1-215-857-11   | METAL OXIDE                   | 10   | 5% | 1W     |
| D32     | 8-719-300-33   | DIODE RU-3AM                  |          |     |        | R6      | 1-249-447-11   | CARBON                        | 1    | 5% | 1/4W   |
|         |                |                               |          |     |        | R7      | 1-247-692-11   | CARBON                        | 22   | 5% | 1/4W   |
|         |                |                               |          |     |        | R8      | 1-249-418-11   | CARBON                        | 1.2K | 5% | 1/4W   |
|         |                |                               |          |     |        | R9      | 1-249-382-11   | CARBON                        | 1.2  | 5% | 1/4W   |
|         |                |                               |          |     |        | R10     | 1-249-447-11   | CARBON                        | 1    | 5% | 1/4W   |
|         |                |                               |          |     |        | R11     | 1-247-692-11   | CARBON                        | 22   | 5% | 1/4W   |
| GA1     | 1-506-348-XX   | PIN, CONNECTOR 3P             |          |     |        | R12     | 1-249-418-11   | CARBON                        | 1.2K | 5% | 1/4W   |
| GA2     | *1-506-371-00  | PIN, CONNECTOR 2P             |          |     |        | R13     | 1-215-866-11   | METAL OXIDE                   | 330  | 5% | 1W     |
| GA3     | *1-508-768-00  | PIN, CONNECTOR (5MM PITCH) 6P |          |     |        | R14     | 1-247-700-11   | CARBON                        | 100  | 5% | 1/4W   |

- The components identified by  in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

Les composants identifies par une trame et une marque A sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

The components identified by shading and mark  are critical for safety.  
Replace only with part number specified.

The components identified by shading and mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une trame et une marque  $\Delta$  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

**GA**

| REF. NO. | PART NO.     | DESCRIPTION | REMARK   | REF. NO. | PART NO. | DESCRIPTION | REMARK                 |                   |          |     |      |
|----------|--------------|-------------|----------|----------|----------|-------------|------------------------|-------------------|----------|-----|------|
| C9       | 1-126-104-11 | ELECT       | 470MF    | 20%      | 25V      | C73         | 1-124-171-00           | ELECT             | 100MF    | 20% | 160V |
| C10      | 1-126-105-11 | ELECT       | 1000MF   | 20%      | 25V      | C74         | 1-124-122-11           | ELECT             | 100MF    | 20% | 16V  |
| C11      | 1-126-104-11 | ELECT       | 470MF    | 20%      | 25V      | C75         | 1-124-122-11           | ELECT             | 100MF    | 20% | 16V  |
| C12      | 1-124-602-00 | ELECT       | 2200MF   | 20%      | 25V      | C76         | $\Delta$ .1-161-953-52 | CERAMIC           | 0.0047MF | 20% | 400V |
| C13      | 1-126-104-11 | ELECT       | 470MF    | 20%      | 25V      | C77         | $\Delta$ .1-161-953-52 | CERAMIC           | 0.0047MF | 20% | 400V |
| C14      | 1-124-602-00 | ELECT       | 2200MF   | 20%      | 25V      | C78         | 1-162-599-12           | CERAMIC           | 0.0047MF | 20% | 400V |
| C15      | 1-124-360-00 | ELECT       | 1000MF   | 20%      | 16V      | C79         | 1-162-599-12           | CERAMIC           | 0.0047MF | 20% | 400V |
| C16      | 1-126-103-11 | ELECT       | 470MF    | 20%      | 16V      | C80         | 1-125-658-11           | ELECT             | 560MF    | 20% | 250V |
| C17      | 1-106-375-12 | MYLAR       | 0.022MF  | 10%      | 100V     | C81         | 1-125-658-11           | ELECT             | 560MF    | 20% | 250V |
| C18      | 1-108-638-11 | MYLAR       | 0.1MF    | 10%      | 100V     | C82         | 1-123-369-00           | ELECT             | 4.7MF    | 20% | 25V  |
| C19      | 1-102-030-00 | CERAMIC     | 330PF    | 10%      | 500V     | C83         | 1-101-004-00           | CERAMIC           | 0.01MF   |     | 50V  |
| C20      | 1-162-117-00 | CERAMIC     | 100PF    | 10%      | 500V     | C84         | $\Delta$ .1-136-311-61 | FILM              | 0.47MF   | 20% | 300V |
| C21      | 1-102-038-00 | CERAMIC     | 0.001MF  |          |          | C85         | $\Delta$ .1-162-578-51 | CERAMIC           | 0.0047MF | 20% | 400V |
| C22      | 1-162-117-00 | CERAMIC     | 100PF    | 10%      | 500V     | C86         | $\Delta$ .1-162-578-51 | CERAMIC           | 0.0047MF | 20% | 400V |
| C23      | 1-106-375-12 | MYLAR       | 0.022MF  | 10%      | 100V     | C87         | $\Delta$ .1-162-578-51 | CERAMIC           | 0.0047MF | 20% | 400V |
| C24      | 1-108-638-11 | MYLAR       | 0.1MF    | 10%      | 100V     | C88         | $\Delta$ .1-162-578-51 | CERAMIC           | 0.0047MF | 20% | 400V |
| C25      | 1-124-903-11 | ELECT       | 1MF      | 20%      | 50V      | C89         | $\Delta$ .1-136-311-61 | FILM              | 0.47MF   | 20% | 300V |
| C26      | 1-101-361-00 | CERAMIC     | 150PF    | 5%       | 50V      | C90         | 1-136-171-00           | FILM              | 0.033MF  | 5%  | 50V  |
| C27      | 1-101-361-00 | CERAMIC     | 150PF    | 5%       | 50V      | C91         | 1-162-599-12           | CERAMIC           | 0.0047MF | 20% | 400V |
| C28      | 1-126-966-11 | ELECT       | 10MF     | 20%      | 16V      | C92         | 1-136-171-00           | FILM              | 0.033MF  | 5%  | 50V  |
| C29      | 1-124-910-11 | ELECT       | 47MF     | 20%      | 25V      | C93         | 1-162-599-12           | CERAMIC           | 0.0047MF | 20% | 400V |
| C30      | 1-162-117-00 | CERAMIC     | 100PF    | 10%      | 500V     | C94         | 1-102-038-00           | CERAMIC           | 0.001MF  |     | 500V |
| C31      | 1-102-030-00 | CERAMIC     | 330PF    | 10%      | 500V     | C95         | 1-136-173-00           | FILM              | 0.47MF   | 5%  | 50V  |
| C32      | 1-124-903-11 | ELECT       | 1MF      | 20%      | 50V      | C96         | 1-102-050-00           | CERAMIC           | 0.01MF   | 99% | 500V |
| C33      | 1-101-361-00 | CERAMIC     | 150PF    | 5%       | 50V      | C97         | 1-136-173-00           | FILM              | 0.47MF   | 5%  | 50V  |
| C34      | 1-101-361-00 | CERAMIC     | 150PF    | 5%       | 50V      | C98         | 1-136-173-00           | FILM              | 0.47MF   | 5%  | 50V  |
| C35      | 1-124-903-11 | ELECT       | 1MF      | 20%      | 50V      | C99         | 1-102-050-00           | CERAMIC           | 0.01MF   | 99% | 500V |
| C36      | 1-124-910-11 | ELECT       | 47MF     | 20%      | 25V      | C100        | 1-162-117-00           | CERAMIC           | 100PF    | 10% | 500V |
| C37      | 1-130-734-00 | FILM        | 0.0068MF | 5%       | 50V      | C101        | 1-162-117-00           | CERAMIC           | 100PF    | 10% | 500V |
| C38      | 1-136-165-00 | FILM        | 0.1MF    | 5%       | 50V      | C102        | 1-136-601-11           | FILM              | 0.01MF   | 5%  | 630V |
| C39      | 1-136-165-00 | FILM        | 0.1MF    | 5%       | 50V      | C103        | 1-136-601-11           | FILM              | 0.01MF   | 5%  | 630V |
| C40      | 1-123-381-00 | ELECT       | 2.2MF    | 20%      | 50V      | <DIODE>     |                        |                   |          |     |      |
| C41      | 1-102-038-00 | CERAMIC     | 0.001MF  |          |          | D1          | 8-719-912-51           | DIODE ESAC25-04C  |          |     |      |
| C42      | 1-136-165-00 | FILM        | 0.1MF    | 5%       | 50V      | D2          | 8-719-918-73           | DIODE ESAC25-04N  |          |     |      |
| C43      | 1-136-165-00 | FILM        | 0.1MF    | 5%       | 50V      | D3          | 8-719-901-73           | DIODE ESAD25-04D  |          |     |      |
| C44      | 1-126-966-11 | ELECT       | 10MF     | 20%      | 16V      | D4          | 8-719-901-73           | DIODE ESAD25-04D  |          |     |      |
| C45      | 1-162-132-00 | CERAMIC     | 270PF    | 10%      | 2KV      | D5          | 8-719-907-24           | DIODE ESAC31-02D  |          |     |      |
| C46      | 1-126-966-11 | ELECT       | 10MF     | 20%      | 16V      | D6          | 8-719-907-24           | DIODE ESAC31-02D  |          |     |      |
| C47      | 1-136-173-00 | FILM        | 0.47MF   | 5%       | 50V      | D7          | 8-719-300-33           | DIODE RU-3AM      |          |     |      |
| C48      | 1-136-173-00 | FILM        | 0.47MF   | 5%       | 50V      | D8          | 8-719-300-52           | DIODE CTU-38R     |          |     |      |
| C49      | 1-126-966-11 | ELECT       | 10MF     | 20%      | 16V      | D9          | 8-719-300-53           | DIODE CTU-38S     |          |     |      |
| C50      | 1-101-006-00 | CERAMIC     | 0.047MF  |          |          | D10         | 8-719-912-51           | DIODE ESAC25-04C  |          |     |      |
| C51      | 1-101-006-00 | CERAMIC     | 0.047MF  |          |          | D11         | 8-719-918-73           | DIODE ESAC25-04N  |          |     |      |
| C52      | 1-101-006-00 | CERAMIC     | 0.047MF  |          |          | D12         | 8-719-911-19           | DIODE ISS119      |          |     |      |
| C53      | 1-101-006-00 | CERAMIC     | 0.047MF  |          |          | D13         | 8-719-911-19           | DIODE ISS119      |          |     |      |
| C54      | 1-101-006-00 | CERAMIC     | 0.047MF  |          |          | D14         | 8-719-100-58           | DIODE RD10EBB3    |          |     |      |
| C55      | 1-126-966-11 | ELECT       | 10MF     | 20%      | 16V      | D15         | 8-719-911-19           | DIODE ISS119      |          |     |      |
| C56      | 1-136-201-11 | FILM        | 0.22MF   | 5%       | 400V     | D16         | 8-719-911-19           | DIODE ISS119      |          |     |      |
| C57      | 1-124-915-11 | ELECT       | 10MF     | 20%      | 25V      | D17         | 8-719-911-19           | DIODE ISS119      |          |     |      |
| C58      | 1-124-902-00 | ELECT       | 0.47MF   | 20%      | 50V      | D18         | 8-719-109-89           | DIODE RD5.6ESB2   |          |     |      |
| C59      | 1-130-734-00 | FILM        | 0.0068MF | 5%       | 50V      | D19         | 8-719-200-02           | DIODE 10E-2       |          |     |      |
| C60      | 1-102-228-00 | CERAMIC     | 470PF    | 10%      | 500V     | D20         | 8-719-300-07           | DIODE RB406N      |          |     |      |
| C61      | 1-102-228-00 | CERAMIC     | 470PF    | 10%      | 500V     | D21         | $\Delta$ .8-719-912-51 | DIODE ESAC25-04C  |          |     |      |
| C62      | 1-102-228-00 | CERAMIC     | 470PF    | 10%      | 500V     | D22         | 8-759-157-40           | IC UPC574J        |          |     |      |
| C63      | 1-102-228-00 | CERAMIC     | 470PF    | 10%      | 500V     | D23         | 8-719-911-19           | DIODE ISS119      |          |     |      |
| C64      | 1-124-024-00 | ELECT       | 4.7MF    | 20%      | 350V     | D24         | 8-719-100-58           | DIODE RD10EBB3    |          |     |      |
| C65      | 1-124-024-00 | ELECT       | 4.7MF    | 20%      | 350V     | D25         | 8-719-911-19           | DIODE ISS119      |          |     |      |
| C66      | 1-162-117-00 | CERAMIC     | 100PF    | 10%      | 500V     | D26         | 8-719-003-08           | THYRISTOR CR3CM-8 |          |     |      |
| C67      | 1-162-117-00 | CERAMIC     | 100PF    | 10%      | 500V     | D27         | 8-719-982-04           | DIODE ERB81-004   |          |     |      |
| C68      | 1-162-117-00 | CERAMIC     | 100PF    | 10%      | 500V     | D28         | 8-719-982-04           | DIODE ERB81-004   |          |     |      |
| C69      | 1-124-562-11 | ELECT       | 47MF     | 20%      | 200V     | D29         | 8-719-982-04           | DIODE ERB81-004   |          |     |      |
| C70      | 1-124-171-00 | ELECT       | 100MF    | 20%      | 160V     | D30         | 8-719-982-04           | DIODE ERB81-004   |          |     |      |
| C71      | 1-162-117-00 | CERAMIC     | 100PF    | 10%      | 500V     | D31         | 8-719-300-33           | DIODE RU-3AM      |          |     |      |

- The components identified by **█** in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

Les composants identifiés par une trame et une marque **█** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by shading and mark **▲** are critical for safety. Replace only with part number specified.

| REF. NO.            | PART NO.                 | DESCRIPTION                   | REMARK | REF. NO.            | PART NO.     | DESCRIPTION   | REMARK         |
|---------------------|--------------------------|-------------------------------|--------|---------------------|--------------|---------------|----------------|
| D32                 | 8-719-300-33             | DIODE RU-3AM                  |        | R8                  | 1-249-418-11 | CARBON        | 1.2K 5% 1/4W F |
|                     |                          | <CONNECTOR>                   |        | R9                  | 1-249-382-11 | CARBON        | 1.2 5% 1/4W F  |
| GA1                 | 1-506-348-XX             | PIN, CONNECTOR 3P             |        | R10                 | 1-249-447-11 | CARBON        | 1 5% 1/4W F    |
| GA2                 | *1-506-371-00            | PIN, CONNECTOR 2P             |        | R11                 | 1-247-692-11 | CARBON        | 22 5% 1/4W     |
| GA3                 | *1-508-768-00            | PIN, CONNECTOR (5MM PITCH) 6P |        | R12                 | 1-249-418-11 | CARBON        | 1.2K 5% 1/4W F |
| GA4                 | *1-508-786-00            | PIN, CONNECTOR (5MM PITCH) 2P |        | R13                 | 1-215-866-11 | METAL OXIDE   | 330 5% 1W F    |
| GA5                 | *1-566-055-11            | PIN, CONNECTOR 3P             |        | R14                 | 1-247-700-11 | CARBON        | 100 5% 1/4W    |
| GA6                 | *1-566-055-11            | PIN, CONNECTOR 3P             |        | R15                 | 1-247-709-11 | CARBON        | 510 5% 1/4W    |
| GA7                 | *1-566-058-11            | PIN, CONNECTOR 6P             |        | R16                 | 1-247-709-11 | CARBON        | 510 5% 1/4W    |
| GA8                 | *1-566-057-11            | PIN, CONNECTOR 5P             |        | R17                 | 1-247-700-11 | CARBON        | 100 5% 1/4W    |
|                     |                          | <IC>                          |        | R18                 | 1-249-425-11 | CARBON        | 4.7K 5% 1/4W   |
| IC1                 | 1-806-805-11             | IC MC5433                     |        | R19                 | 1-249-419-11 | CARBON        | 1.5K 5% 1/4W   |
| IC2                 | 8-759-904-94             | IC TL494CN                    |        | R20                 | 1-247-838-00 | CARBON        | 2K 5% 1/4W     |
| IC3                 | 8-759-904-94             | IC TL494CN                    |        | R21                 | 1-249-417-11 | CARBON        | 1K 5% 1/4W     |
|                     |                          | <COIL>                        |        | R22                 | 1-249-409-11 | CARBON        | 220 5% 1/4W    |
| L3                  | 1-459-643-11             | COIL, CHOKE 525UH             |        | R23                 | 1-249-417-11 | CARBON        | 1K 5% 1/4W     |
| L4                  | 1-459-643-11             | COIL, CHOKE 525UH             |        | R24                 | 1-249-421-11 | CARBON        | 2.2K 5% 1/4W   |
| L5                  | 1-459-643-11             | COIL, CHOKE 525UH             |        | R25                 | 1-249-409-11 | CARBON        | 220 5% 1/4W    |
| L6                  | 1-459-643-11             | COIL, CHOKE 525UH             |        | R26                 | 1-247-700-11 | CARBON        | 100 5% 1/4W    |
| L7                  | 1-459-207-00             | COIL, CORE                    |        | R27                 | 1-247-713-11 | CARBON        | 1K 5% 1/4W     |
| L8                  | 1-459-644-11             | COIL, CHOKE 2.9MMH            |        | R28                 | 1-247-713-11 | CARBON        | 1K 5% 1/4W     |
| L9                  | 1-459-645-11             | COIL, CHOKE 20MMH             |        | R29                 | 1-247-700-11 | CARBON        | 100 5% 1/4W    |
| L10                 | 1-421-329-00             | COIL, CHOKE                   |        | R30                 | 1-215-886-11 | METAL OXIDE   | 100 5% 2W F    |
| L11                 | 1-421-329-00             | COIL, CHOKE                   |        | R31                 | 1-215-886-11 | METAL OXIDE   | 100 5% 2W F    |
| L12                 | 1-421-329-00             | COIL, CHOKE                   |        | R32                 | 1-215-886-11 | METAL OXIDE   | 100 5% 2W F    |
| L13                 | 1-421-329-00             | COIL, CHOKE                   |        | R33                 | 1-247-697-11 | CARBON        | 56 5% 1/4W F   |
| L14                 | 1-421-329-00             | COIL, CHOKE                   |        | R34                 | 1-247-697-11 | CARBON        | 56 5% 1/4W F   |
| L15                 | 1-421-329-00             | COIL, CHOKE                   |        | R35                 | 1-215-863-11 | METAL OXIDE   | 100 5% 1W F    |
| L16                 | 1-421-329-00             | COIL, CHOKE                   |        | R36                 | 1-249-425-11 | CARBON        | 4.7K 5% 1/4W   |
| L17 ▲ .1-421-590-11 | TRANSFORMER, LINE FILTER |                               |        | R37                 | 1-249-420-11 | CARBON        | 1.8K 5% 1/4W   |
| L18 ▲ .1-421-590-11 | TRANSFORMER, LINE FILTER |                               |        | R38                 | 1-249-429-11 | CARBON        | 10K 5% 1/4W    |
|                     |                          | <TRANSISTOR>                  |        | R39                 | 1-249-413-11 | CARBON        | 470 5% 1/4W    |
| Q1                  | 8-729-301-76             | TRANSISTOR STR8124-R          |        | R40                 | 1-215-453-00 | METAL         | 22K 1% 1/4W    |
| Q2                  | 8-729-301-76             | TRANSISTOR STR8124-R          |        | R41                 | 1-249-425-11 | CARBON        | 4.7K 5% 1/4W   |
| Q3                  | 8-729-140-96             | TRANSISTOR 2SD774-34          |        | R42                 | 1-215-437-00 | METAL         | 4.7K 1% 1/4W   |
| Q4                  | 8-729-140-96             | TRANSISTOR 2SD774-34          |        | R43                 | 1-215-435-00 | METAL         | 3.9K 1% 1/4W   |
| Q5                  | 8-729-140-96             | TRANSISTOR 2SD774-34          |        | R44                 | 1-215-427-00 | METAL         | 1.8K 1% 1/4W   |
|                     |                          |                               |        | R45                 | 1-247-713-11 | CARBON        | 1K 5% 1/4W     |
| Q6                  | 8-729-140-96             | TRANSISTOR 2SD774-34          |        | R46                 | 1-249-417-11 | CARBON        | 1K 5% 1/4W     |
| Q7                  | 8-729-140-97             | TRANSISTOR 2SB734-34          |        | R47                 | 1-216-995-11 | METAL         | 820 1% 10W     |
| Q8                  | 8-729-119-78             | TRANSISTOR 2SC2785-HFE        |        | R48                 | 1-215-866-11 | METAL OXIDE   | 330 5% 1W F    |
| Q9                  | 8-729-119-78             | TRANSISTOR 2SC2785-HFE        |        | ▲ R52 ▲ .           | 1-215-866-11 | METAL OXIDE   | 2W F           |
| Q10                 | 8-729-313-42             | TRANSISTOR 2SD1134-C          |        | ▲ R53 ▲ .           | 1-215-866-11 | METAL         | 1/4W           |
|                     |                          |                               |        | R54                 | 1-215-901-00 | METAL OXIDE   | 33K 5% 2W F    |
| Q11                 | 8-729-119-76             | TRANSISTOR 2SA1175-HFE        |        | R55                 | 1-215-426-00 | METAL         | 1.6K 1% 1/4W   |
| Q12                 | 8-729-140-96             | TRANSISTOR 2SD774-34          |        | R60                 | 1-249-420-11 | CARBON        | 1.8K 5% 1/4W   |
| Q13                 | 8-729-119-78             | TRANSISTOR 2SC2785-HFE        |        | R61                 | 1-249-420-11 | CARBON        | 1.8K 5% 1/4W   |
| Q14                 | 8-729-119-78             | TRANSISTOR 2SC2785-HFE        |        | R62                 | 1-249-429-11 | CARBON        | 10K 5% 1/4W    |
|                     |                          | <RESISTOR>                    |        | R64                 | 1-249-426-11 | CARBON        | 5.6K 5% 1/4W   |
| R1                  | 1-215-857-11             | METAL OXIDE 10 5% 1W F        |        | R65                 | 1-215-437-00 | METAL         | 4.7K 1% 1/4W   |
| R2                  | 1-215-857-11             | METAL OXIDE 10 5% 1W F        |        | R66                 | 1-215-453-00 | METAL         | 22K 1% 1/4W    |
| R3                  | 1-247-715-11             | CARBON 1.5K 5% 1/4W           |        | ▲ R67 ▲ .           | 1-215-437-00 | METAL         | 1/2W           |
| R4                  | 1-215-857-11             | METAL OXIDE 10 5% 1W F        |        | ▲ R68 ▲ .           | 1-215-453-00 | METAL         | 1/4W           |
| R5                  | 1-215-857-11             | METAL OXIDE 10 5% 1W F        |        | R74                 | 1-215-889-00 | METAL OXIDE   | 330 5% 2W F    |
| R6                  | 1-249-447-11             | CARBON 1 5% 1/4W F            |        | R77                 | 1-215-433-00 | METAL         | 3.3K 1% 1/4W   |
| R7                  | 1-247-692-11             | CARBON 22 5% 1/4W             |        | R78                 | 1-215-433-00 | METAL         | 3.3K 1% 1/4W   |
|                     |                          |                               |        | R80 ▲ .1-202-643-35 | SOLID        | 820K 10% 1/2W |                |
|                     |                          |                               |        | R81                 | 1-215-461-00 | METAL         | 47K 1% 1/4W    |
|                     |                          |                               |        | R82                 | 1-215-461-00 | METAL         | 47K 1% 1/4W    |
|                     |                          |                               |        | R83                 | 1-215-461-00 | METAL         | 47K 1% 1/4W    |
|                     |                          |                               |        | R84                 | 1-215-459-00 | METAL         | 39K 1% 1/4W    |
|                     |                          |                               |        | R85                 | 1-215-449-00 | METAL         | 15K 1% 1/4W    |
|                     |                          |                               |        | R86                 | 1-215-437-00 | METAL         | 4.7K 1% 1/4W   |

The components identified by shading and mark A are critical for safety.  
Replace only with part number specified.

Les composants identifies par une trame et une marque A sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

**GA** **GB** **C**



| REF. NO.                         | PART NO.      | DESCRIPTION                   | REMARK       | REF. NO. | PART NO.     | DESCRIPTION | REMARK           |
|----------------------------------|---------------|-------------------------------|--------------|----------|--------------|-------------|------------------|
| C1                               | *1-566-054-11 | PIN, CONNECTOR 2P             |              |          |              |             |                  |
| C2                               | *1-566-056-11 | PIN, CONNECTOR 4P             |              |          |              |             |                  |
| C3                               | *1-566-054-11 | PIN, CONNECTOR 2P             |              |          |              |             |                  |
| C4                               | *1-566-056-11 | PIN, CONNECTOR 4P             |              |          |              |             |                  |
| C5                               | *1-566-054-11 | PIN, CONNECTOR 2P             |              |          |              |             |                  |
| C6                               | *1-566-056-11 | PIN, CONNECTOR 4P             |              |          |              |             |                  |
| C7                               | *1-508-765-00 | PIN, CONNECTOR (5MM PITCH) 3P |              |          |              |             |                  |
| C8                               | *1-508-786-00 | PIN, CONNECTOR (5MM PITCH) 2P |              |          |              |             |                  |
| <TRANSISTOR>                     |               |                               |              |          |              |             |                  |
| Q1                               | 8-729-901-01  | TRANSISTOR DTC144EK           |              |          |              |             |                  |
| Q2                               | 8-729-901-01  | TRANSISTOR DTC144EK           |              |          |              |             |                  |
| Q3                               | 8-729-901-01  | TRANSISTOR DTC144EK           |              |          |              |             |                  |
| Q4                               | 8-729-901-01  | TRANSISTOR DTC144EK           |              |          |              |             |                  |
| <RESISTOR>                       |               |                               |              |          |              |             |                  |
| <COIL>                           |               |                               |              |          |              |             |                  |
| L1                               | 1-408-408-00  | INDUCTOR                      | 8.2UH        | R1       | 1-216-675-11 | METAL CHIP  | 10K 0.50% 1/10W  |
| L2                               | 1-408-408-00  | INDUCTOR                      | 8.2UH        | R2       | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
| L3                               | 1-408-408-00  | INDUCTOR                      | 8.2UH        | R3       | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
|                                  |               |                               |              | R4       | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
|                                  |               |                               |              | R5       | 1-216-675-11 | METAL CHIP  | 10K 0.50% 1/10W  |
| <RESISTOR>                       |               |                               |              |          |              |             |                  |
| R1                               | 1-202-818-00  | SOLID                         | 1K 10% 1/2W  | R6       | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
| R2                               | 1-202-818-00  | SOLID                         | 1K 10% 1/2W  | R7       | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
| R3                               | 1-202-818-00  | SOLID                         | 1K 10% 1/2W  | R8       | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
| R4                               | 1-249-431-11  | CARBON                        | 15K 5% 1/4W  | R9       | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
| R5                               | 1-202-818-00  | SOLID                         | 1K 10% 1/2W  | R10      | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
| R6                               | 1-202-818-00  | SOLID                         | 1K 10% 1/2W  | R11      | 1-216-675-11 | METAL CHIP  | 10K 0.50% 1/10W  |
| R7                               | 1-202-818-00  | SOLID                         | 1K 10% 1/2W  | R12      | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
| R8                               | 1-249-431-11  | CARBON                        | 15K 5% 1/4W  | R13      | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
| R9                               | 1-202-818-00  | SOLID                         | 1K 10% 1/2W  | R14      | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
| R10                              | 1-202-818-00  | SOLID                         | 1K 10% 1/2W  | R15      | 1-216-675-11 | METAL CHIP  | 10K 0.50% 1/10W  |
| R11                              | 1-202-818-00  | SOLID                         | 1K 10% 1/2W  | R16      | 1-216-691-11 | METAL CHIP  | 47K 0.50% 1/10W  |
| R12                              | 1-249-431-11  | CARBON                        | 15K 5% 1/4W  | R17      | 1-216-691-11 | METAL CHIP  | 47K 0.50% 1/10W  |
| R13                              | 1-202-818-00  | SOLID                         | 1K 10% 1/2W  | R18      | 1-216-697-11 | METAL CHIP  | 82K 0.50% 1/10W  |
|                                  |               |                               |              | R19      | 1-216-691-11 | METAL CHIP  | 47K 0.50% 1/10W  |
|                                  |               |                               |              | R20      | 1-216-691-11 | METAL CHIP  | 47K 0.50% 1/10W  |
| <SPARK GAP>                      |               |                               |              |          |              |             |                  |
| SG1                              | 1-519-063-XX  | DISCHARGING GAP               |              | R21      | 1-216-675-11 | METAL CHIP  | 10K 0.50% 1/10W  |
| SG2                              | 1-519-063-XX  | DISCHARGING GAP               |              | R22      | 1-216-699-11 | METAL CHIP  | 100K 0.50% 1/10W |
| SG3                              | 1-519-063-XX  | DISCHARGING GAP               |              | R23      | 1-216-699-11 | METAL CHIP  | 100K 0.50% 1/10W |
| SG4                              | 1-519-063-XX  | DISCHARGING GAP               |              | R24      | 1-216-699-11 | METAL CHIP  | 100K 0.50% 1/10W |
| SG5                              | 1-519-063-XX  | DISCHARGING GAP               |              | R25      | 1-216-675-11 | METAL CHIP  | 10K 0.50% 1/10W  |
| SG6                              | 1-519-063-XX  | DISCHARGING GAP               |              | R26      | 1-216-691-11 | METAL CHIP  | 47K 0.50% 1/10W  |
| SG7                              | 1-519-063-XX  | DISCHARGING GAP               |              | R27      | 1-216-691-11 | METAL CHIP  | 47K 0.50% 1/10W  |
|                                  |               |                               |              | R28      | 1-216-697-11 | METAL CHIP  | 82K 0.50% 1/10W  |
|                                  |               |                               |              | R29      | 1-216-691-11 | METAL CHIP  | 47K 0.50% 1/10W  |
|                                  |               |                               |              | R30      | 1-216-691-11 | METAL CHIP  | 47K 0.50% 1/10W  |
| *****                            |               |                               |              |          |              |             |                  |
| *A-1341-408-A DC BOARD, COMPLETE |               |                               |              | R31      | 1-216-691-11 | METAL CHIP  | 47K 0.50% 1/10W  |
| *****                            |               |                               |              | R32      | 1-216-679-11 | METAL CHIP  | 15K 0.50% 1/10W  |
|                                  |               |                               |              | R37      | 1-216-089-00 | METAL GLAZE | 47K 5% 1/10W     |
|                                  |               |                               |              | R39      | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
|                                  |               |                               |              | R40      | 1-216-699-11 | METAL CHIP  | 100K 0.50% 1/10W |
| <CAPACITOR>                      |               |                               |              |          |              |             |                  |
| C1                               | 1-126-157-11  | ELECT                         | 10MF 20% 16V | R41      | 1-216-699-11 | METAL CHIP  | 100K 0.50% 1/10W |
| C2                               | 1-126-157-11  | ELECT                         | 10MF 20% 16V | R42      | 1-216-675-11 | METAL CHIP  | 10K 0.50% 1/10W  |
| C3                               | 1-163-038-00  | CBRAMIC CHIP                  | 0.1MF 25V    | R51      | 1-216-675-11 | METAL CHIP  | 10K 0.50% 1/10W  |
| C4                               | 1-163-038-00  | CERAMIC CHIP                  | 0.1MF 25V    | R52      | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
| C5                               | 1-163-038-00  | CERAMIC CHIP                  | 0.1MF 25V    | R53      | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
| C6                               | 1-163-038-00  | CERAMIC CHIP                  | 0.1MF 25V    | R54      | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
|                                  |               |                               |              | R55      | 1-216-675-11 | METAL CHIP  | 10K 0.50% 1/10W  |
|                                  |               |                               |              | R56      | 1-216-675-11 | METAL CHIP  | 10K 0.50% 1/10W  |
|                                  |               |                               |              | R57      | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
|                                  |               |                               |              | R58      | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
| <CONNECTOR>                      |               |                               |              |          |              |             |                  |
| DC1                              | *1-566-062-11 | PIN, CONNECTOR 10P            |              | R59      | 1-216-683-11 | METAL CHIP  | 22K 0.50% 1/10W  |
| DC2                              | *1-566-062-11 | PIN, CONNECTOR 10P            |              | R60      | 1-216-675-11 | METAL CHIP  | 10K 0.50% 1/10W  |
|                                  |               |                               |              | R61      | 1-216-691-11 | METAL CHIP  | 47K 0.50% 1/10W  |
|                                  |               |                               |              | R62      | 1-216-691-11 | METAL CHIP  | 47K 0.50% 1/10W  |
|                                  |               |                               |              | R63      | 1-216-697-11 | METAL CHIP  | 82K 0.50% 1/10W  |
| <IC>                             |               |                               |              |          |              |             |                  |
| IC1                              | 8-759-509-17  | IC XRU4053BF                  |              | R64      | 1-216-691-11 | METAL CHIP  | 47K 0.50% 1/10W  |
| IC2                              | 8-759-509-17  | IC XRU4053BF                  |              | R65      | 1-216-691-11 | METAL CHIP  | 47K 0.50% 1/10W  |
| IC3                              | 8-759-509-17  | IC XRU4053BF                  |              | R66      | 1-216-691-11 | METAL CHIP  | 47K 0.50% 1/10W  |
|                                  |               |                               |              | R67      | 1-216-691-11 | METAL CHIP  | 47K 0.50% 1/10W  |

**DC** **V** **EB**

| REF. NO.            | PART NO.     | DESCRIPTION      |      |       | REMARK | REF. NO. | PART NO.                         | DESCRIPTION  |                                      |          | REMARK |      |  |  |  |  |  |
|---------------------|--------------|------------------|------|-------|--------|----------|----------------------------------|--------------|--------------------------------------|----------|--------|------|--|--|--|--|--|
| R68                 | 1-216-697-11 | METAL CHIP       | 82K  | 0.50% | 1/10W  |          |                                  |              | *****                                |          |        |      |  |  |  |  |  |
| R69                 | 1-216-691-11 | METAL CHIP       | 47K  | 0.50% | 1/10W  |          |                                  |              | 1-563-265-11 CONNECTOR, MULTIPLE 10P |          |        |      |  |  |  |  |  |
| R70                 | 1-216-691-11 | METAL CHIP       | 47K  | 0.50% | 1/10W  |          |                                  |              |                                      |          |        |      |  |  |  |  |  |
| R71                 | 1-216-655-11 | METAL CHIP       | 1.5K | 0.50% | 1/10W  |          |                                  |              |                                      |          |        |      |  |  |  |  |  |
| <RESISTOR>          |              |                  |      |       |        |          |                                  |              |                                      |          |        |      |  |  |  |  |  |
| <VARIABLE RESISTOR> |              |                  |      |       |        |          |                                  |              |                                      |          |        |      |  |  |  |  |  |
| RV1                 | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | R1                               | 1-249-405-11 | CARBON                               | 100      | 5%     | 1/4W |  |  |  |  |  |
| RV2                 | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | R2                               | 1-249-405-11 | CARBON                               | 100      | 5%     | 1/4W |  |  |  |  |  |
| RV3                 | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | R3                               | 1-249-405-11 | CARBON                               | 100      | 5%     | 1/4W |  |  |  |  |  |
| RV4                 | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | R4                               | 1-249-405-11 | CARBON                               | 100      | 5%     | 1/4W |  |  |  |  |  |
| RV5                 | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | R5                               | 1-249-405-11 | CARBON                               | 100      | 5%     | 1/4W |  |  |  |  |  |
| RV6                 | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | R6                               | 1-249-405-11 | CARBON                               | 100      | 5%     | 1/4W |  |  |  |  |  |
| RV7                 | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | R7                               | 1-249-405-11 | CARBON                               | 100      | 5%     | 1/4W |  |  |  |  |  |
| RV8                 | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | *****                            |              |                                      |          |        |      |  |  |  |  |  |
| RV9                 | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | *A-1345-731-A EB BOARD, COMPLETE |              |                                      |          |        |      |  |  |  |  |  |
| RV10                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | *****                            |              |                                      |          |        |      |  |  |  |  |  |
| RV11                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | *A-437-965-01 INSULATOR (SMALL)  |              |                                      |          |        |      |  |  |  |  |  |
| RV12                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | *A-437-966-01 INSULATOR (LARGE)  |              |                                      |          |        |      |  |  |  |  |  |
| RV13                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | <CAPACITOR>                      |              |                                      |          |        |      |  |  |  |  |  |
| RV14                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C1                               | 1-124-666-11 | ELECT                                | 4.7MF    | 20%    | 200V |  |  |  |  |  |
| RV15                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C2                               | 1-124-917-11 | ELECT                                | 33MF     | 20%    | 25V  |  |  |  |  |  |
| RV16                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C3                               | 1-124-791-11 | ELECT                                | 1MF      | 20%    | 50V  |  |  |  |  |  |
| RV17                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C4                               | 1-124-357-11 | ELECT                                | 33MF     | 20%    | 35V  |  |  |  |  |  |
| RV18                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C6                               | 1-130-789-00 | FILM                                 | 1MF      | 5%     | 100V |  |  |  |  |  |
| RV19                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C7                               | 1-106-375-12 | MYLAR                                | 0.022MF  | 10%    | 200V |  |  |  |  |  |
| RV20                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C8                               | 1-124-666-11 | ELECT                                | 4.7MF    | 20%    | 200V |  |  |  |  |  |
| RV21                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C9                               | 1-130-479-00 | MYLAR                                | 0.0047MF | 5%     | 50V  |  |  |  |  |  |
| RV22                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C10                              | 1-124-122-11 | ELECT                                | 100MF    | 20%    | 25V  |  |  |  |  |  |
| RV23                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C11                              | 1-102-973-00 | CERAMIC                              | 100PF    | 5%     | 50V  |  |  |  |  |  |
| RV24                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C12                              | 1-124-122-11 | ELECT                                | 100MF    | 20%    | 25V  |  |  |  |  |  |
| RV25                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C13                              | 1-136-161-00 | FILM                                 | 0.047MF  | 5%     | 50V  |  |  |  |  |  |
| RV26                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C14                              | 1-124-915-11 | ELECT                                | 10MF     | 20%    | 50V  |  |  |  |  |  |
| RV27                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C15                              | 1-136-167-00 | FILM                                 | 0.15MF   | 5%     | 50V  |  |  |  |  |  |
| RV28                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C16                              | 1-124-046-00 | ELECT                                | 10MF     | 160V   |      |  |  |  |  |  |
| RV29                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C17                              | 1-124-046-00 | ELECT                                | 10MF     | 20%    | 160V |  |  |  |  |  |
| RV30                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C18                              | 1-124-122-11 | ELECT                                | 100MF    | 20%    | 25V  |  |  |  |  |  |
| RV31                | 1-228-462-00 | RES, ADJ, CERMET | 100K |       |        |          | C19                              | 1-124-122-11 | ELECT                                | 100MF    | 20%    | 25V  |  |  |  |  |  |
| RV32                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C20                              | 1-162-129-00 | CERAMIC                              | 150PF    | 10%    | 2KV  |  |  |  |  |  |
| RV33                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C21                              | 1-136-173-00 | FILM                                 | 0.47MF   | 5%     | 50V  |  |  |  |  |  |
| RV34                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C22                              | 1-102-959-00 | CERAMIC                              | 22PF     | 5%     | 50V  |  |  |  |  |  |
| RV35                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | C23                              | 1-101-880-00 | CERAMIC                              | 47PF     | 5%     | 50V  |  |  |  |  |  |
| RV36                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | <DIODE>                          |              |                                      |          |        |      |  |  |  |  |  |
| RV37                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | D1                               | 8-719-911-19 | DIODE                                | ISS119   |        |      |  |  |  |  |  |
| RV38                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | D2                               | 8-719-911-19 | DIODE                                | ISS119   |        |      |  |  |  |  |  |
| RV39                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | D3                               | 8-719-911-19 | DIODE                                | ISS119   |        |      |  |  |  |  |  |
| RV40                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | D4                               | 8-719-908-03 | DIODE                                | GPO8D    |        |      |  |  |  |  |  |
| RV41                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | D5                               | 8-719-908-03 | DIODE                                | GPO8D    |        |      |  |  |  |  |  |
| RV42                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | D6                               | 8-719-911-19 | DIODE                                | ISS119   |        |      |  |  |  |  |  |
| RV43                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | D7                               | 8-719-911-19 | DIODE                                | ISS119   |        |      |  |  |  |  |  |
| RV44                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | D8                               | 8-719-911-19 | DIODE                                | ISS119   |        |      |  |  |  |  |  |
| RV45                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | D9                               | 8-719-911-19 | DIODE                                | ISS119   |        |      |  |  |  |  |  |
| RV46                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | D10                              | 8-719-911-19 | DIODE                                | ISS119   |        |      |  |  |  |  |  |
| RV47                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | <COIL>                           |              |                                      |          |        |      |  |  |  |  |  |
| RV48                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | D21                              | 8-719-911-19 | DIODE                                | ISS119   |        |      |  |  |  |  |  |
| RV49                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | L1                               | 1-459-123-00 | COIL, DUST CORE(PAC)                 |          |        |      |  |  |  |  |  |
| RV50                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | *****                            |              |                                      |          |        |      |  |  |  |  |  |
| RV51                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | *****                            |              |                                      |          |        |      |  |  |  |  |  |
| RV52                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | *****                            |              |                                      |          |        |      |  |  |  |  |  |
| RV53                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | *****                            |              |                                      |          |        |      |  |  |  |  |  |
| RV54                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | *****                            |              |                                      |          |        |      |  |  |  |  |  |
| RV55                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | *****                            |              |                                      |          |        |      |  |  |  |  |  |
| RV56                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | *****                            |              |                                      |          |        |      |  |  |  |  |  |
| RV57                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | *****                            |              |                                      |          |        |      |  |  |  |  |  |
| RV58                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | *****                            |              |                                      |          |        |      |  |  |  |  |  |
| RV59                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | *****                            |              |                                      |          |        |      |  |  |  |  |  |
| RV60                | 1-228-459-00 | RES, ADJ, CERMET | 10K  |       |        |          | *****                            |              |                                      |          |        |      |  |  |  |  |  |
| RV61                | 1-228-462-00 | RES, ADJ, CERMET | 100K |       |        |          | *****                            |              |                                      |          |        |      |  |  |  |  |  |

\*1-627-677-11 V BOARD

**EB** **DB**

| REF. NO.                         | PART NO.     | DESCRIPTION           | REMARK | REF. NO. | PART NO.     | DESCRIPTION                | REMARK  |
|----------------------------------|--------------|-----------------------|--------|----------|--------------|----------------------------|---------|
| <b>&lt;TRANSISTOR&gt;</b>        |              |                       |        |          |              |                            |         |
| Q1                               | 8-729-697-92 | TRANSISTOR 2SA979-G   |        | R41      | 1-215-421-00 | METAL                      | 1K      |
| Q2                               | 8-729-140-50 | TRANSISTOR 2SC3209LK  |        | R42      | 1-247-688-11 | CARBON                     | 10      |
| Q3                               | 8-729-255-12 | TRANSISTOR 2SC2551-0  |        | R43      | 1-247-688-11 | CARBON                     | 10      |
| Q4                               | 8-729-200-17 | TRANSISTOR 2SA1091-0  |        | R44      | 1-215-865-11 | METAL OXIDE                | 220     |
| Q5                               | 8-729-208-71 | TRANSISTOR 2SC3298B-0 |        | R45      | 1-247-688-11 | CARBON                     | 10      |
| Q6                               | 8-729-208-38 | TRANSISTOR 2SA1306A-0 |        | R51      | 1-249-411-11 | CARBON                     | 330     |
| Q7                               | 8-729-386-12 | TRANSISTOR 2SB861-C   |        |          |              |                            | 1/4W    |
| Q8                               | 8-729-255-12 | TRANSISTOR 2SC2551-0  |        |          |              |                            | F       |
| Q9                               | 8-729-697-92 | TRANSISTOR 2SA979-G   |        |          |              |                            | F       |
| Q10                              | 8-729-140-96 | TRANSISTOR 2SD774-34  |        |          |              |                            | F       |
| Q11                              | 8-729-140-97 | TRANSISTOR 2SB734-34  |        |          |              |                            |         |
| Q12                              | 8-729-306-92 | TRANSISTOR 2SD669A-C  |        |          |              |                            |         |
| Q13                              | 8-729-306-92 | TRANSISTOR 2SD669A-C  |        |          |              |                            |         |
| Q14                              | 8-729-255-12 | TRANSISTOR 2SC2551-0  |        |          |              |                            |         |
| Q15                              | 8-729-255-12 | TRANSISTOR 2SC2551-0  |        |          |              |                            |         |
| Q16                              | 8-729-255-12 | TRANSISTOR 2SC2551-0  |        |          |              |                            |         |
| Q17                              | 8-729-200-17 | TRANSISTOR 2SA1091-0  |        |          |              |                            |         |
| Q18                              | 8-729-119-80 | TRANSISTOR 2SC2688-LK |        |          |              |                            |         |
| Q19                              | 8-729-119-80 | TRANSISTOR 2SC2688-LK |        |          |              |                            |         |
| <b>&lt;RESISTOR&gt;</b>          |              |                       |        |          |              |                            |         |
| R1                               | 1-249-429-11 | CARBON                | 10K    | C3       | 1-102-963-00 | CERAMIC                    | 33PF    |
| R2                               | 1-249-433-11 | CARBON                | 22K    | C4       | 1-136-165-00 | FILM                       | 0.1MF   |
| R3                               | 1-249-425-11 | CARBON                | 4.7K   | C5       | 1-136-161-00 | FILM                       | 0.047MF |
| R4                               | 1-249-430-11 | CARBON                | 12K    | C6       | 1-161-051-00 | CERAMIC                    | 0.01MF  |
| R5                               | 1-249-426-11 | CARBON                | 5.6K   | C7       | 1-124-589-11 | ELECT                      | 47MF    |
| R6                               | 1-249-429-11 | CARBON                | 10K    | C8       | 1-136-153-00 | FILM                       | 0.01MF  |
| R7                               | 1-216-489-11 | METAL OXIDE           | 27K    | C9       | 1-102-074-00 | CERAMIC                    | 0.001MF |
| R8                               | 1-247-802-11 | CARBON                | 62     | C10      | 1-136-161-00 | FILM                       | 0.047MF |
| R9                               | 1-249-414-11 | CARBON                | 560    | C11      | 1-102-973-00 | CERAMIC                    | 100PF   |
| R10                              | 1-249-448-11 | CARBON                | 1.2    | C12      | 1-136-165-00 | FILM                       | 0.1MF   |
| R11                              | 1-249-448-11 | CARBON                | 1.2    | C13      | 1-136-161-00 | FILM                       | 0.047MF |
| R12                              | 1-216-351-00 | METAL OXIDE           | 1.5    | C14      | 1-102-824-00 | CERAMIC                    | 470PF   |
| R13                              | 1-216-431-11 | METAL OXIDE           | 560    | C15      | 1-136-165-00 | FILM                       | 0.1MF   |
| R14                              | 1-215-866-11 | METAL OXIDE           | 330    | C16      | 1-102-074-00 | CERAMIC                    | 0.001MF |
| R15                              | 1-249-425-11 | CARBON                | 4.7K   | C17      | 1-136-153-00 | FILM                       | 0.01MF  |
| R16                              | 1-249-423-11 | CARBON                | 3.3K   | C18      | 1-161-051-00 | CERAMIC                    | 10%     |
| R17                              | 1-247-700-11 | CARBON                | 100    | C19      | 1-124-589-11 | ELECT                      | 20%     |
| R18                              | 1-215-873-00 | METAL OXIDE           | 4.7K   | C20      | 1-124-589-11 | ELECT                      | 16V     |
| R19                              | 1-249-429-11 | CARBON                | 10K    | C21      | 1-161-051-00 | CERAMIC                    | 20%     |
| R20                              | 1-249-429-11 | CARBON                | 10K    | C22      | 1-124-589-11 | ELECT                      | 16V     |
| R21                              | 1-249-425-11 | CARBON                | 4.7K   | C23      | 1-163-157-00 | FILM                       | 0.022MF |
| R22                              | 1-249-423-11 | CARBON                | 3.3K   | C24      | 1-136-165-00 | FILM                       | 0.1MF   |
| R23                              | 1-249-425-11 | CARBON                | 4.7K   | C25      | 1-136-153-00 | FILM                       | 0.01MF  |
| R24                              | 1-249-417-11 | CARBON                | 1K     | C26      | 1-136-161-00 | FILM                       | 0.047MF |
| R25                              | 1-249-417-11 | CARBON                | 1K     | C27      | 1-163-157-00 | FILM                       | 0.022MF |
| R26                              | 1-249-421-11 | CARBON                | 2.2K   | C28      | 1-136-165-00 | FILM                       | 0.1MF   |
| R27                              | 1-249-421-11 | CARBON                | 2.2K   | C29      | 1-136-153-00 | FILM                       | 0.01MF  |
| R28                              | 1-249-405-11 | CARBON                | 100    | C30      | 1-136-161-00 | FILM                       | 0.047MF |
| R29                              | 1-249-452-11 | CARBON                | 2.7    | C31      | 1-124-589-11 | ELECT                      | 20%     |
| R30                              | 1-249-452-11 | CARBON                | 2.7    | C32      | 1-161-051-00 | CERAMIC                    | 16V     |
| R31                              | 1-249-407-11 | CARBON                | 150    | C33      | 1-102-074-00 | CERAMIC                    | 0.01MF  |
| R32                              | 1-216-351-00 | METAL OXIDE           | 1.5    | C34      | 1-136-161-00 | FILM                       | 0.001MF |
| R33                              | 1-215-421-00 | METAL                 | 1K     | C35      | 1-102-973-00 | CERAMIC                    | 10%     |
| R34                              | 1-215-445-00 | METAL                 | 10K    | C36      | 1-136-165-00 | FILM                       | 5%      |
| R35                              | 1-249-423-11 | CARBON                | 3.3K   | C37      | 1-136-161-00 | FILM                       | 5%      |
| R36                              | 1-216-465-11 | METAL OXIDE           | 27K    | C38      | 1-102-824-00 | CERAMIC                    | 470PF   |
| R37                              | 1-249-401-11 | CARBON                | 47     | C39      | 1-136-165-00 | FILM                       | 5%      |
| R38                              | 1-249-425-11 | CARBON                | 4.7K   | C40      | 1-102-074-00 | CERAMIC                    | 50V     |
| R39                              | 1-215-445-00 | METAL                 | 10K    | C41      | 1-136-153-00 | FILM                       | 0.001MF |
| R40                              | 1-215-453-00 | METAL                 | 22K    | C42      | 1-161-051-00 | CERAMIC                    | 10%     |
|                                  |              |                       |        | C43      | 1-124-589-11 | ELECT                      | 20%     |
|                                  |              |                       |        | C44      | 1-124-589-11 | ELECT                      | 20%     |
|                                  |              |                       |        | C45      | 1-102-074-00 | CERAMIC                    | 50V     |
| <b>&lt;TRANSFORMER&gt;</b>       |              |                       |        |          |              |                            |         |
|                                  |              |                       |        | T1       | 1-421-504-00 | TRANSFORMER, FERRITE (VPT) |         |
|                                  |              |                       |        | T2       | 1-407-849-00 | TRANSFORMER, D.F.          |         |
| *****                            |              |                       |        |          |              |                            |         |
| *A-1345-981-A DB BOARD, COMPLETE |              |                       |        |          |              |                            |         |
| *****                            |              |                       |        |          |              |                            |         |
| 3-618-225-00 NUT, PLATE          |              |                       |        |          |              |                            |         |
| <b>&lt;CAPACITOR&gt;</b>         |              |                       |        |          |              |                            |         |
|                                  |              |                       |        | C3       | 1-102-963-00 | CERAMIC                    | 33PF    |
|                                  |              |                       |        | C4       | 1-136-165-00 | FILM                       | 0.1MF   |
|                                  |              |                       |        | C5       | 1-136-161-00 | FILM                       | 0.047MF |
|                                  |              |                       |        | C6       | 1-161-051-00 | CERAMIC                    | 0.01MF  |
|                                  |              |                       |        | C7       | 1-124-589-11 | ELECT                      | 47MF    |
|                                  |              |                       |        | C8       | 1-136-153-00 | FILM                       | 0.01MF  |
|                                  |              |                       |        | C9       | 1-102-074-00 | CERAMIC                    | 0.001MF |
|                                  |              |                       |        | C10      | 1-136-161-00 | FILM                       | 0.047MF |
|                                  |              |                       |        | C11      | 1-102-973-00 | CERAMIC                    | 100PF   |
|                                  |              |                       |        | C12      | 1-136-165-00 | FILM                       | 0.1MF   |
|                                  |              |                       |        | C13      | 1-136-161-00 | FILM                       | 0.047MF |
|                                  |              |                       |        | C14      | 1-102-824-00 | CERAMIC                    | 470PF   |
|                                  |              |                       |        | C15      | 1-136-165-00 | FILM                       | 0.1MF   |
|                                  |              |                       |        | C16      | 1-102-074-00 | CERAMIC                    | 0.001MF |
|                                  |              |                       |        | C17      | 1-136-153-00 | FILM                       | 0.01MF  |
|                                  |              |                       |        | C18      | 1-161-051-00 | CERAMIC                    | 10%     |
|                                  |              |                       |        | C19      | 1-124-589-11 | ELECT                      | 20%     |
|                                  |              |                       |        | C20      | 1-124-589-11 | ELECT                      | 16V     |
|                                  |              |                       |        | C21      | 1-161-051-00 | CERAMIC                    | 20%     |
|                                  |              |                       |        | C22      | 1-124-589-11 | ELECT                      | 16V     |
|                                  |              |                       |        | C23      | 1-163-157-00 | FILM                       | 0.022MF |
|                                  |              |                       |        | C24      | 1-136-165-00 | FILM                       | 0.1MF   |
|                                  |              |                       |        | C25      | 1-136-153-00 | FILM                       | 0.01MF  |
|                                  |              |                       |        | C26      | 1-136-161-00 | FILM                       | 0.047MF |
|                                  |              |                       |        | C27      | 1-163-157-00 | FILM                       | 0.022MF |
|                                  |              |                       |        | C28      | 1-136-165-00 | FILM                       | 0.1MF   |
|                                  |              |                       |        | C29      | 1-136-153-00 | FILM                       | 0.01MF  |
|                                  |              |                       |        | C30      | 1-136-161-00 | FILM                       | 0.047MF |
|                                  |              |                       |        | C31      | 1-124-589-11 | ELECT                      | 20%     |
|                                  |              |                       |        | C32      | 1-161-051-00 | CERAMIC                    | 16V     |
|                                  |              |                       |        | C33      | 1-102-074-00 | CERAMIC                    | 0.001MF |
|                                  |              |                       |        | C34      | 1-136-161-00 | FILM                       | 0.047MF |
|                                  |              |                       |        | C35      | 1-102-973-00 | CERAMIC                    | 100PF   |
|                                  |              |                       |        | C36      | 1-136-165-00 | FILM                       | 0.1MF   |
|                                  |              |                       |        | C37      | 1-136-161-00 | FILM                       | 0.047MF |
|                                  |              |                       |        | C38      | 1-102-824-00 | CERAMIC                    | 470PF   |
|                                  |              |                       |        | C39      | 1-136-165-00 | FILM                       | 0.1MF   |
|                                  |              |                       |        | C40      | 1-102-074-00 | CERAMIC                    | 0.001MF |
|                                  |              |                       |        | C41      | 1-136-153-00 | FILM                       | 0.01MF  |
|                                  |              |                       |        | C42      | 1-161-051-00 | CERAMIC                    | 0.01MF  |
|                                  |              |                       |        | C43      | 1-124-589-11 | ELECT                      | 10%     |
|                                  |              |                       |        | C44      | 1-124-589-11 | ELECT                      | 50V     |
|                                  |              |                       |        | C45      | 1-102-074-00 | CERAMIC                    | 50V     |

| REF. NO. | PART NO.      | DESCRIPTION        | REMARK   | REF. NO. | PART NO. | DESCRIPTION | REMARK       |                        |        |
|----------|---------------|--------------------|----------|----------|----------|-------------|--------------|------------------------|--------|
| C46      | 1-136-161-00  | FILM               | 0.047MF  | 5%       | 50V      | IC2         | 8-759-145-58 | IC UPC4558C            |        |
| C47      | 1-102-973-00  | CERAMIC            | 100PF    | 5%       | 50V      | IC3         | 8-759-145-58 | IC UPC4558C            |        |
| C48      | 1-136-165-00  | FILM               | 0.1MF    | 5%       | 50V      | IC4         | 8-759-145-58 | IC UPC4558C            |        |
| C49      | 1-136-161-00  | FILM               | 0.047MF  | 5%       | 50V      | IC5         | 8-759-145-58 | IC UPC4558C            |        |
| C50      | 1-108-794-11  | MYLAR              | 0.0015MF | 5%       | 50V      | IC6         | 8-759-145-58 | IC UPC4558C            |        |
| C51      | 1-136-161-00  | FILM               | 0.047MF  | 5%       | 50V      | IC7         | 8-759-145-58 | IC UPC4558C            |        |
| C52      | 1-102-074-00  | CERAMIC            | 0.001MF  | 10%      | 50V      | IC8         | 8-759-145-58 | IC UPC4558C            |        |
| C53      | 1-101-880-00  | CERAMIC            | 47PF     | 5%       | 50V      | IC11        | 8-759-140-53 | IC UPD4053BC           |        |
| C54      | 1-161-051-00  | CERAMIC            | 0.01MF   | 10%      | 50V      | IC12        | 8-759-145-58 | IC UPC4558C            |        |
| C55      | 1-124-589-11  | ELECT              | 47MF     | 20%      | 16V      | IC13        | 8-759-929-62 | IC LM7812CT            |        |
| C56      | 1-124-589-11  | ELECT              | 47MF     | 20%      | 16V      | IC14        | 8-759-929-65 | IC LM7912CT            |        |
| C57      | 1-102-074-00  | CERAMIC            | 0.001MF  | 10%      | 50V      | IC15        | 8-759-345-38 | IC HD14538BP           |        |
| C58      | 1-136-161-00  | FILM               | 0.047MF  | 5%       | 50V      | IC16        | 8-759-729-03 | IC NJM2903D            |        |
| C59      | 1-102-973-00  | CERAMIC            | 100PF    | 5%       | 50V      |             |              | <COIL>                 |        |
| C60      | 1-136-169-00  | FILM               | 0.22MF   | 5%       | 50V      | L1          | 1-408-236-00 | INDUCTOR               | 2.7MMH |
| C61      | 1-136-161-00  | FILM               | 0.047MF  | 5%       | 50V      | L2          | 1-408-236-00 | INDUCTOR               | 2.7MMH |
| C62      | 1-102-074-00  | CERAMIC            | 0.001MF  | 10%      | 50V      | L3          | 1-408-238-00 | INDUCTOR               | 3.9MMH |
| C63      | 1-136-161-00  | FILM               | 0.047MF  | 5%       | 50V      | L4          | 1-408-237-00 | INDUCTOR               | 3.3MMH |
| C64      | 1-102-074-00  | CERAMIC            | 0.001MF  | 10%      | 50V      |             |              | <TRANSISTOR>           |        |
| C65      | 1-101-880-00  | CERAMIC            | 47PF     | 5%       | 50V      | Q2          | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
| C66      | 1-161-051-00  | CERAMIC            | 0.01MF   | 10%      | 50V      | Q3          | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
| C67      | 1-124-589-11  | ELECT              | 47MF     | 20%      | 16V      | Q4          | 8-729-900-36 | TRANSISTOR DTC124ES    |        |
| C68      | 1-124-589-11  | ELECT              | 47MF     | 20%      | 16V      | Q5          | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
| C69      | 1-161-051-00  | CERAMIC            | 0.01MF   | 10%      | 50V      | Q6          | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
| C70      | 1-102-074-00  | CERAMIC            | 0.001MF  | 10%      | 50V      | Q7          | 8-729-201-05 | TRANSISTOR 2SC2878-B   |        |
| C71      | 1-124-589-11  | ELECT              | 47MF     | 20%      | 16V      | Q8          | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
| C72      | 1-126-096-11  | ELECT              | 10MF     | 20%      | 25V      | Q9          | 8-729-106-07 | TRANSISTOR 2SK514-H    |        |
| C73      | 1-126-096-11  | ELECT              | 10MF     | 20%      | 25V      | Q10         | 8-729-900-36 | TRANSISTOR DTC124ES    |        |
| C74      | 1-126-096-11  | ELECT              | 10MF     | 20%      | 25V      | Q11         | 8-729-201-05 | TRANSISTOR 2SC2878-B   |        |
| C75      | 1-126-096-11  | ELECT              | 10MF     | 20%      | 25V      | Q12         | 8-729-201-05 | TRANSISTOR 2SC2878-B   |        |
| C76      | 1-126-096-11  | ELECT              | 10MF     | 20%      | 25V      | Q13         | 8-729-106-07 | TRANSISTOR 2SK514-H    |        |
| C77      | 1-126-096-11  | ELECT              | 10MF     | 20%      | 25V      | Q14         | 8-729-900-36 | TRANSISTOR DTC124ES    |        |
| C78      | 1-161-051-00  | CERAMIC            | 0.01MF   | 10%      | 50V      | Q15         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
| C81      | 1-102-121-00  | CERAMIC            | 0.0022MF | 10%      | 50V      | Q16         | 8-729-106-07 | TRANSISTOR 2SK514-H    |        |
| C83      | 1-136-167-00  | FILM               | 0.15MF   | 5%       | 50V      | Q17         | 8-729-900-36 | TRANSISTOR DTC124ES    |        |
| C84      | 1-161-051-00  | CERAMIC            | 0.01MF   | 10%      | 50V      | Q18         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
| C87      | 1-101-361-00  | CERAMIC            | 150PF    | 5%       | 50V      | Q19         | 8-729-201-05 | TRANSISTOR 2SC2878-B   |        |
| C88      | 1-161-051-00  | CERAMIC            | 0.01MF   | 10%      | 50V      | Q20         | 8-729-201-05 | TRANSISTOR 2SC2878-B   |        |
| C89      | 1-161-051-00  | CERAMIC            | 0.01MF   | 10%      | 50V      | Q21         | 8-729-201-05 | TRANSISTOR 2SC2878-B   |        |
|          |               |                    |          |          |          |             |              | <DIODE>                |        |
| D2       | 8-719-109-97  | DIODE RD6.8ESB2    |          |          |          | Q22         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
| D3       | 8-719-911-19  | DIODE ISS119       |          |          |          | Q23         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
| D4       | 8-719-911-19  | DIODE ISS119       |          |          |          | Q24         | 8-729-106-07 | TRANSISTOR 2SK514-H    |        |
| D5       | 8-719-911-19  | DIODE ISS119       |          |          |          | Q25         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
| D6       | 8-719-110-03  | DIODE RD7.5ESB2    |          |          |          | Q26         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
| D7       | 8-719-110-03  | DIODE RD7.5ESB2    |          |          |          | Q27         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
| D8       | 8-719-109-97  | DIODE RD6.8ESB2    |          |          |          | Q28         | 8-729-106-07 | TRANSISTOR 2SK514-H    |        |
| D10      | 8-719-911-19  | DIODE ISS119       |          |          |          | Q29         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
|          |               |                    |          |          |          | Q30         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
|          |               |                    |          |          |          | Q31         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
|          |               |                    |          |          |          |             |              | <CONNECTOR>            |        |
| DB1      | *1-566-062-11 | PIN, CONNECTOR 10P |          |          |          | Q32         | 8-729-106-07 | TRANSISTOR 2SK514-H    |        |
| DB2      | *1-566-054-11 | PIN, CONNECTOR 2P  |          |          |          | Q33         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
| DB3      | *1-566-055-11 | PIN, CONNECTOR 3P  |          |          |          | Q34         | 8-729-173-38 | TRANSISTOR 2SA733-K    |        |
| DB4      | *1-566-055-11 | PIN, CONNECTOR 3P  |          |          |          | Q35         | 8-729-173-38 | TRANSISTOR 2SA733-K    |        |
| DB5      | *1-566-055-11 | PIN, CONNECTOR 3P  |          |          |          | Q36         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
| DB6      | *1-566-062-11 | PIN, CONNECTOR 10P |          |          |          | Q37         | 8-729-900-36 | TRANSISTOR DTC124ES    |        |
| DB7      | *1-566-062-11 | PIN, CONNECTOR 10P |          |          |          | Q38         | 8-729-173-38 | TRANSISTOR 2SA733-K    |        |
|          |               |                    |          |          |          | Q40         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
|          |               |                    |          |          |          | Q41         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
|          |               |                    |          |          |          | Q43         | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |        |
|          |               |                    |          |          |          | Q44         | 8-729-173-38 | TRANSISTOR 2SA733-K    |        |
| I C1     | 8-759-145-58  | IC UPC4558C        |          |          |          |             |              |                        |        |

| REF. NO. | PART NO.     | DESCRIPTION         | REMARK | REF. NO. | PART NO.     | DESCRIPTION | REMARK       |
|----------|--------------|---------------------|--------|----------|--------------|-------------|--------------|
| Q47      | 8-729-900-65 | TRANSISTOR DTA144ES |        | R63      | 1-215-453-00 | METAL       | 22K 1% 1/4W  |
| Q49      | 8-729-900-89 | TRANSISTOR DTC144ES |        | R64      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
| Q101     | 8-729-900-89 | TRANSISTOR DTC144ES |        | R65      | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
|          |              |                     |        | R66      | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |
|          |              |                     |        | R67      | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |
|          |              |                     |        | R68      | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W |
|          |              |                     |        | R69      | 1-249-435-11 | CARBON      | 33K 5% 1/4W  |
|          |              |                     |        | R70      | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W |
|          |              |                     |        | R71      | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |
|          |              |                     |        | R72      | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |
|          |              |                     |        | R73      | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W |
|          |              |                     |        | R74      | 1-247-903-00 | CARBON      | 1M 5% 1/4W   |
|          |              |                     |        | R75      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
|          |              |                     |        | R76      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
|          |              |                     |        | R77      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
|          |              |                     |        | R78      | 1-215-469-00 | METAL       | 100K 1% 1/4W |
|          |              |                     |        | R79      | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
|          |              |                     |        | R80      | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |
|          |              |                     |        | R81      | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |
|          |              |                     |        | R82      | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W |
|          |              |                     |        | R83      | 1-249-435-11 | CARBON      | 33K 5% 1/4W  |
|          |              |                     |        | R84      | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W |
|          |              |                     |        | R85      | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |
|          |              |                     |        | R86      | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |
|          |              |                     |        | R87      | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W |
|          |              |                     |        | R88      | 1-247-895-00 | CARBON      | 470K 5% 1/4W |
|          |              |                     |        | R89      | 1-247-895-00 | CARBON      | 470K 5% 1/4W |
|          |              |                     |        | R90      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
|          |              |                     |        | R91      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
|          |              |                     |        | R92      | 1-215-469-00 | METAL       | 100K 1% 1/4W |
|          |              |                     |        | R93      | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
|          |              |                     |        | R94      | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |
|          |              |                     |        | R95      | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |
|          |              |                     |        | R96      | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W |
|          |              |                     |        | R97      | 1-249-435-11 | CARBON      | 33K 5% 1/4W  |
|          |              |                     |        | R98      | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W |
|          |              |                     |        | R99      | 1-249-412-11 | CARBON      | 390 5% 1/4W  |
|          |              |                     |        | R100     | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |
|          |              |                     |        | R101     | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W |
|          |              |                     |        | R102     | 1-247-895-00 | CARBON      | 470K 5% 1/4W |
|          |              |                     |        | R103     | 1-247-895-00 | CARBON      | 470K 5% 1/4W |
|          |              |                     |        | R104     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
|          |              |                     |        | R105     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
|          |              |                     |        | R106     | 1-215-397-00 | METAL       | 100 1% 1/4W  |
|          |              |                     |        | R107     | 1-249-393-11 | CARBON      | 10 5% 1/4W F |
|          |              |                     |        | R108     | 1-249-393-11 | CARBON      | 10 5% 1/4W F |
|          |              |                     |        | R109     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
|          |              |                     |        | R110     | 1-215-437-00 | METAL       | 4.7K 1% 1/4W |
|          |              |                     |        | R111     | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W |
|          |              |                     |        | R112     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
|          |              |                     |        | R113     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
|          |              |                     |        | R114     | 1-215-441-00 | METAL       | 6.8K 1% 1/4W |
|          |              |                     |        | R115     | 1-215-469-00 | METAL       | 100K 1% 1/4W |
|          |              |                     |        | R116     | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W |
|          |              |                     |        | R117     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
|          |              |                     |        | R118     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
|          |              |                     |        | R119     | 1-215-421-00 | METAL       | 1K 1% 1/4W   |
|          |              |                     |        | R120     | 1-215-421-00 | METAL       | 1K 1% 1/4W   |
|          |              |                     |        | R121     | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W |
|          |              |                     |        | R122     | 1-215-461-00 | METAL       | 47K 1% 1/4W  |
|          |              |                     |        | R123     | 1-215-437-00 | METAL       | 4.7K 1% 1/4W |
|          |              |                     |        | R124     | 1-215-437-00 | METAL       | 4.7K 1% 1/4W |
|          |              |                     |        | R125     | 1-215-469-00 | METAL       | 100K 1% 1/4W |
|          |              |                     |        | R126     | 1-249-435-11 | CARBON      | 33K 5% 1/4W  |

**DB** **DA**

| REF. NO.                         | PART NO.     | DESCRIPTION | REMARK           | REF. NO. | PART NO.     | DESCRIPTION | REMARK         |
|----------------------------------|--------------|-------------|------------------|----------|--------------|-------------|----------------|
| R128                             | 1-202-731-00 | SOLID       | 10M 5% 1/2W      | C31      | 1-102-973-00 | CERAMIC     | 100PF 5% 50V   |
| R129                             | 1-215-479-00 | METAL       | 270K 1% 1/4W     | C32      | 1-101-361-00 | CERAMIC     | 150PF 5% 50V   |
| R130                             | 1-247-830-11 | CARBON      | 910 5% 1/4W      | C33      | 1-130-871-11 | FILM        | 0.01MF 5% 50V  |
| R132                             | 1-247-830-11 | CARBON      | 910 5% 1/4W      | C34      | 1-126-301-11 | ELECT       | 1MF 20% 50V    |
| R169                             | 1-247-903-00 | CARBON      | 1M 5% 1/4W       | C35      | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V |
| R170                             | 1-247-903-00 | CARBON      | 1M 5% 1/4W       | C36      | 1-102-824-00 | CERAMIC     | 470PF 5% 50V   |
| R171                             | 1-249-441-11 | CARBON      | 100K 5% 1/4W     | C38      | 1-102-824-00 | CERAMIC     | 470PF 5% 50V   |
| R172                             | 1-249-429-11 | CARBON      | 10K 5% 1/4W      | C39      | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V |
| R173                             | 1-249-429-11 | CARBON      | 10K 5% 1/4W      | C40      | 1-130-871-11 | FILM        | 0.01MF 5% 50V  |
| R174                             | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W     | C41      | 1-126-301-11 | ELECT       | 1MF 20% 50V    |
| R175                             | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W     | C42      | 1-130-871-11 | FILM        | 0.01MF 5% 50V  |
| R176                             | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W     | C43      | 1-126-301-11 | ELECT       | 1MF 20% 50V    |
| R177                             | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W     | C44      | 1-124-465-00 | ELECT       | 0.47MF 20% 50V |
| R185                             | 1-249-417-11 | CARBON      | 1K 5% 1/4W       | C45      | 1-126-157-11 | ELECT       | 10MF 20% 16V   |
| R186                             | 1-249-429-11 | CARBON      | 10K 5% 1/4W      | C46      | 1-126-157-11 | ELECT       | 10MF 20% 16V   |
| R187                             | 1-249-435-11 | CARBON      | 33K 5% 1/4W      | C47      | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V |
| R188                             | 1-249-429-11 | CARBON      | 10K 5% 1/4W      | C48      | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V |
| R189                             | 1-249-435-11 | CARBON      | 33K 5% 1/4W      | C49      | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V |
| R190                             | 1-249-417-11 | CARBON      | 1K 5% 1/4W       | C50      | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V |
| R191                             | 1-249-423-11 | CARBON      | 3.3K 5% 1/4W     | C51      | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V |
| R192                             | 1-215-453-00 | METAL       | 22K 1% 1/4W      | C52      | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V |
| R193                             | 1-249-417-11 | CARBON      | 1K 5% 1/4W       | C53      | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V |
| R194                             | 1-249-417-11 | CARBON      | 1K 5% 1/4W       | C54      | 1-126-157-11 | ELECT       | 10MF 20% 16V   |
| R195                             | 1-249-429-11 | CARBON      | 10K 5% 1/4W      | C55      | 1-126-157-11 | ELECT       | 10MF 20% 16V   |
| R301                             | 1-249-437-11 | CARBON      | 47K 5% 1/4W      | C56      | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V |
| *****                            |              |             |                  |          |              |             |                |
| *A-1345-982-A DA BOARD, COMPLETE |              |             |                  |          |              |             |                |
| *****                            |              |             |                  |          |              |             |                |
| 3-618-225-00 NUT, PLATE          |              |             |                  |          |              |             |                |
| <CAPACITOR>                      |              |             |                  |          |              |             |                |
| C1                               | 1-126-157-11 | ELECT       | 10MF 20% 16V     | C66      | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V |
| C2                               | 1-126-157-11 | ELECT       | 10MF 20% 16V     | C67      | 1-126-163-11 | ELECT       | 4.7MF 20% 25V  |
| C3                               | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V   | C68      | 1-101-361-00 | CERAMIC     | 150PF 5% 50V   |
| C4                               | 1-101-361-00 | CERAMIC     | 150PF 5% 50V     | C69      | 1-126-157-11 | ELECT       | 10MF 20% 16V   |
| C5                               | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V   | C70      | 1-126-157-11 | ELECT       | 10MF 20% 16V   |
| C6                               | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V   | C71      | 1-126-157-11 | ELECT       | 10MF 20% 16V   |
| C7                               | 1-101-361-00 | CERAMIC     | 150PF 5% 50V     | C72      | 1-126-157-11 | ELECT       | 10MF 20% 16V   |
| C8                               | 1-102-527-11 | CERAMIC     | 82PF 5% 50V      | C73      | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V |
| C9                               | 1-101-361-00 | CERAMIC     | 150PF 5% 50V     | C74      | 1-126-157-11 | ELECT       | 10MF 20% 16V   |
| C10                              | 1-106-359-00 | MYLAR       | 0.0047MF 5% 100V | C75      | 1-126-157-11 | ELECT       | 10MF 20% 16V   |
| C11                              | 1-130-738-00 | FILM        | 0.015MF 5% 100V  | C76      | 1-136-165-00 | FILM        | 0.1MF 5% 50V   |
| C12                              | 1-163-157-00 | FILM        | 0.022MF 5% 50V   | C77      | 1-136-165-00 | FILM        | 0.1MF 5% 50V   |
| C13                              | 1-136-155-00 | FILM        | 0.015MF 5% 50V   | C78      | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V |
| C14                              | 1-163-157-00 | FILM        | 0.022MF 5% 50V   | C79      | 1-101-004-00 | CERAMIC     | 0.01MF 50V     |
| C15                              | 1-130-479-00 | MYLAR       | 0.0047MF 5% 50V  | C80      | 1-136-161-00 | FILM        | 0.047MF 5% 50V |
| C16                              | 1-124-589-11 | ELECT       | 47MF 20% 16V     | C81      | 1-136-165-00 | FILM        | 0.1MF 5% 50V   |
| C17                              | 1-124-234-00 | ELECT       | 22MF 20% 16V     | C82      | 1-102-978-00 | CERAMIC     | 220PF 5% 50V   |
| C18                              | 1-124-234-00 | ELECT       | 22MF 20% 16V     | C83      | 8-719-911-19 | DIODE       | ISS119         |
| C19                              | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V   | C84      | 8-719-911-19 | DIODE       | ISS119         |
| C20                              | 1-130-871-11 | FILM        | 0.01MF 5% 50V    | C85      | 8-719-109-97 | DIODE       | RD6.8ESB2      |
| C21                              | 1-126-301-11 | ELECT       | 1MF 20% 50V      | C86      | 8-719-109-97 | DIODE       | RD6.8ESB2      |
| C22                              | 1-130-871-11 | FILM        | 0.01MF 5% 50V    | C87      | 8-719-110-31 | DIODE       | RD12ESB2       |
| C23                              | 1-126-301-11 | ELECT       | 1MF 20% 50V      | C88      | 8-719-110-31 | DIODE       | RD12ESB2       |
| C24                              | 1-126-301-11 | ELECT       | 1MF 20% 50V      | C89      | 8-719-110-31 | DIODE       | RD12ESB2       |
| C25                              | 1-126-301-11 | ELECT       | 1MF 20% 50V      | C90      | 8-719-110-31 | DIODE       | RD12ESB2       |
| C26                              | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V   | C91      | 8-719-110-31 | DIODE       | RD12ESB2       |
| C27                              | 1-126-157-11 | ELECT       | 10MF 20% 16V     | C92      | 8-719-110-31 | DIODE       | RD12ESB2       |
| C28                              | 1-126-157-11 | ELECT       | 10MF 20% 16V     | C93      | 8-719-911-19 | DIODE       | ISS119         |
| C29                              | 1-126-301-11 | ELECT       | 1MF 20% 50V      | C94      | 8-719-911-19 | DIODE       | ISS119         |
| C30                              | 1-161-051-00 | CERAMIC     | 0.01MF 10% 50V   | C95      | 8-719-110-03 | DIODE       | RD7.5ESB2      |
| <DIODE>                          |              |             |                  |          |              |             |                |

DA

| REF.NO.      | PART NO.      | DESCRIPTION            | REMARK | REF.NO.    | PART NO.     | DESCRIPTION            | REMARK       |
|--------------|---------------|------------------------|--------|------------|--------------|------------------------|--------------|
| D10          | 8-719-110-03  | DIODE RD7.5ESB2        |        | Q12        | 8-729-900-89 | TRANSISTOR DTC144ES    |              |
| D11          | 8-719-110-41  | DIODE RD15ESB2         |        | Q13        | 8-729-900-89 | TRANSISTOR DTC144ES    |              |
| D12          | 8-719-109-89  | DIODE RD5.6ESB2        |        | Q14        | 8-729-900-89 | TRANSISTOR DTC144ES    |              |
| D13          | 8-719-911-19  | DIODE ISS119           |        | Q15        | 8-729-900-89 | TRANSISTOR DTC144ES    |              |
| D14          | 8-719-911-19  | DIODE ISS119           |        | Q16        | 8-729-900-89 | TRANSISTOR DTC144ES    |              |
| D15          | 8-719-911-19  | DIODE ISS119           |        | Q17        | 8-729-900-89 | TRANSISTOR DTC144ES    |              |
| D18          | 8-719-911-19  | DIODE ISS119           |        | Q18        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
| D19          | 8-719-911-19  | DIODE ISS119           |        | Q19        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
| <CONNECTOR>  |               |                        |        | Q20        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
| DA1          | *1-566-060-11 | PIN, CONNECTOR 8P      |        | Q21        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
| DA2          | *1-566-056-11 | PIN, CONNECTOR 4P      |        | Q22        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
| DA3          | *1-566-062-11 | PIN, CONNECTOR 10P     |        | Q23        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
| DA4          | *1-566-058-11 | PIN, CONNECTOR 6P      |        | Q24        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
| DA5          | *1-566-055-11 | PIN, CONNECTOR 3P      |        | Q31        | 8-729-900-89 | TRANSISTOR DTC144ES    |              |
| DA6          | *1-566-058-11 | PIN, CONNECTOR 6P      |        | <RESISTOR> |              |                        |              |
| DA7          | *1-566-056-11 | PIN, CONNECTOR 4P      |        | R1         | 1-215-461-00 | METAL                  | 47K 1% 1/4W  |
| <IC>         |               |                        |        | R2         | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   |
| IC1          | 8-759-984-27  | IC MB84027B            |        | R3         | 1-249-430-11 | CARBON                 | 12K 5% 1/4W  |
| IC2          | 8-759-040-11  | IC MC14011BCP          |        | R4         | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   |
| IC3          | 8-759-000-58  | IC MC14093BCP          |        | R5         | 1-249-422-11 | CARBON                 | 2.7K 5% 1/4W |
| IC4          | 8-751-580-00  | IC CX-158              |        | R6         | 1-247-840-00 | CARBON                 | 2.4K 5% 1/4W |
| IC5          | 8-759-990-82  | IC TL082CP             |        | R7         | 1-215-462-00 | METAL                  | 51K 1% 1/4W  |
| IC6          | 8-759-990-82  | IC TL082CP             |        | R8         | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   |
| IC7          | 8-759-014-96  | IC MC1496P             |        | R9         | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   |
| IC8          | 8-759-729-03  | IC NJM2903D            |        | R10        | 1-249-423-11 | CARBON                 | 3.3K 5% 1/4W |
| IC9          | 8-759-990-82  | IC TL082CP             |        | R11        | 1-249-419-11 | CARBON                 | 1.5K 5% 1/4W |
| IC10         | 8-759-729-03  | IC NJM2903D            |        | R12        | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  |
| IC11         | 8-759-990-82  | IC TL082CP             |        | R13        | 1-249-424-11 | CARBON                 | 3.9K 5% 1/4W |
| IC12         | 8-759-014-96  | IC MC1496P             |        | R14        | 1-249-419-11 | CARBON                 | 1.5K 5% 1/4W |
| IC13         | 8-759-000-49  | IC MC14066BCP          |        | R15        | 1-249-410-11 | CARBON                 | 270 5% 1/4W  |
| IC14         | 8-759-000-49  | IC MC14066BCP          |        | R16        | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   |
| IC15         | 8-759-000-49  | IC MC14066BCP          |        | R17        | 1-215-427-00 | METAL                  | 1.8K 1% 1/4W |
| IC16         | 8-759-000-49  | IC MC14066BCP          |        | R18        | 1-215-435-00 | METAL                  | 3.9K 1% 1/4W |
| IC17         | 8-759-145-58  | IC UPC4558C            |        | R19        | 1-215-443-00 | METAL                  | 8.2K 1% 1/4W |
| IC18         | 8-759-909-70  | IC CX23025             |        | R20        | 1-249-400-11 | CARBON                 | 39 5% 1/4W F |
| IC19         | 8-759-145-58  | IC UPC4558C            |        | R21        | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  |
| IC20         | 8-759-145-58  | IC UPC4558C            |        | R22        | 1-215-445-00 | METAL                  | 10K 1% 1/4W  |
| IC21         | 8-759-145-58  | IC UPC4558C            |        | R23        | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  |
| IC22         | 8-759-145-58  | IC UPC4558C            |        | R24        | 1-249-427-11 | CARBON                 | 6.8K 5% 1/4W |
| IC23         | 8-759-145-58  | IC UPC4558C            |        | R25        | 1-249-393-11 | CARBON                 | 10 5% 1/4W   |
| IC24         | 8-759-929-62  | IC LM7812CT            |        | R26        | 1-215-439-00 | METAL                  | 5.6K 1% 1/4W |
| IC25         | 8-759-929-65  | IC LM7912CT            |        | R27        | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  |
| IC26         | 8-759-990-82  | IC TL082CP             |        | R28        | 1-215-421-00 | METAL                  | 1K 1% 1/4W   |
| <COIL>       |               |                        |        | R29        | 1-215-458-00 | METAL                  | 36K 1% 1/4W  |
| L1           | 1-407-504-00  | INDUCTOR               | 10MMH  | R30        | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  |
| <TRANSISTOR> |               |                        |        | R31        | 1-249-427-11 | CARBON                 | 6.8K 5% 1/4W |
| Q1           | 8-729-900-89  | TRANSISTOR DTC144ES    |        | R32        | 1-249-393-11 | CARBON                 | 10 5% 1/4W   |
| Q2           | 8-729-119-78  | TRANSISTOR 2SC2785-HFE |        | R33        | 1-249-425-11 | CARBON                 | 4.7K 5% 1/4W |
| Q3           | 8-729-119-78  | TRANSISTOR 2SC2785-HFE |        | R34        | 1-249-424-11 | CARBON                 | 3.9K 5% 1/4W |
| Q4           | 8-729-119-78  | TRANSISTOR 2SC2785-HFE |        | R35        | 1-247-800-11 | CARBON                 | 51 5% 1/4W   |
| Q5           | 8-729-119-78  | TRANSISTOR 2SC2785-HFE |        | R36        | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   |
| Q6           | 8-729-119-78  | TRANSISTOR 2SC2785-HFE |        | R37        | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   |
| Q7           | 8-729-119-78  | TRANSISTOR 2SC2785-HFE |        | R38        | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   |
| Q8           | 8-729-119-78  | TRANSISTOR 2SC2785-HFE |        | R39        | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   |
| Q9           | 8-729-800-10  | TRANSISTOR 2SC3068     |        | R40        | 1-249-417-11 | CARBON                 | 1K 5% 1/4W   |
| Q10          | 8-729-119-78  | TRANSISTOR 2SC2785-HFE |        | R41        | 1-247-800-11 | CARBON                 | 51 5% 1/4W   |
|              |               |                        |        | R42        | 1-249-430-11 | CARBON                 | 12K 5% 1/4W  |
|              |               |                        |        | R43        | 1-249-419-11 | CARBON                 | 1.5K 5% 1/4W |
|              |               |                        |        | R44        | 1-249-424-11 | CARBON                 | 3.9K 5% 1/4W |
|              |               |                        |        | R45        | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  |
|              |               |                        |        | R46        | 1-249-429-11 | CARBON                 | 10K 5% 1/4W  |

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| REF. NO. | PART NO.     | DESCRIPTION | REMARK       | REF. NO. | PART NO.     | DESCRIPTION | REMARK       |
|----------|--------------|-------------|--------------|----------|--------------|-------------|--------------|
| R47      | 1-249-431-11 | CARBON      | 15K 5% 1/4W  | R115     | 1-247-830-11 | CARBON      | 910 5% 1/4W  |
| R48      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R116     | 1-247-830-11 | CARBON      | 910 5% 1/4W  |
| R49      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R123     | 1-215-445-00 | METAL       | 10K 1% 1/4W  |
| R50      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R124     | 1-215-433-00 | METAL       | 3.3K 1% 1/4W |
| R51      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R125     | 1-215-443-00 | METAL       | 8.2K 1% 1/4W |
| R52      | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R126     | 1-215-437-00 | METAL       | 4.7K 1% 1/4W |
| R53      | 1-247-903-00 | CARBON      | 1M 5% 1/4W   | R127     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |
| R54      | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W | R128     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |
| R55      | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R129     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R56      | 1-249-435-11 | CARBON      | 33K 5% 1/4W  | R130     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
| R57      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R131     | 1-215-445-00 | METAL       | 10K 1% 1/4W  |
| R58      | 1-249-423-11 | CARBON      | 3.3K 5% 1/4W | R132     | 1-215-445-00 | METAL       | 10K 1% 1/4W  |
| R59      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R133     | 1-215-461-00 | METAL       | 47K 1% 1/4W  |
| R60      | 1-215-445-00 | METAL       | 10K 1% 1/4W  | R134     | 1-215-447-00 | METAL       | 12K 1% 1/4W  |
| R61      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R135     | 1-249-427-11 | CARBON      | 6.8K 5% 1/4W |
| R62      | 1-249-427-11 | CARBON      | 6.8K 5% 1/4W | R136     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
| R63      | 1-249-393-11 | CARBON      | 10 5% 1/4W   | R137     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R64      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R138     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |
| R65      | 1-249-433-11 | CARBON      | 22K 5% 1/4W  | R139     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   |
| R66      | 1-249-433-11 | CARBON      | 22K 5% 1/4W  | R140     | 1-215-421-00 | METAL       | 1K 1% 1/4W   |
| R67      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R141     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
| R68      | 1-247-903-00 | CARBON      | 1M 5% 1/4W   | R142     | 1-215-457-00 | METAL       | 33K 1% 1/4W  |
| R69      | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W | R143     | 1-215-457-00 | METAL       | 33K 1% 1/4W  |
| R70      | 1-249-435-11 | CARBON      | 33K 5% 1/4W  | R144     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
| R71      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R145     | 1-215-481-00 | METAL       | 330K 1% 1/4W |
| R72      | 1-249-423-11 | CARBON      | 3.3K 5% 1/4W | R146     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
| R74      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R147     | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |
| R76      | 1-249-433-11 | CARBON      | 22K 5% 1/4W  | R148     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R77      | 1-249-439-11 | CARBON      | 68K 5% 1/4W  | R149     | 1-215-421-00 | METAL       | 1K 1% 1/4W   |
| R79      | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W | R150     | 1-215-457-00 | METAL       | 33K 1% 1/4W  |
| R80      | 1-249-435-11 | CARBON      | 33K 5% 1/4W  | R151     | 1-215-457-00 | METAL       | 33K 1% 1/4W  |
| R81      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R152     | 1-215-481-00 | METAL       | 330K 1% 1/4W |
| R82      | 1-249-423-11 | CARBON      | 3.3K 5% 1/4W | R153     | 1-215-431-00 | METAL       | 2.7K 1% 1/4W |
| R83      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R154     | 1-215-413-00 | METAL       | 470 1% 1/4W  |
| R84      | 1-215-445-00 | METAL       | 10K 1% 1/4W  | R155     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
| R85      | 1-249-427-11 | CARBON      | 6.8K 5% 1/4W | R156     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
| R86      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R157     | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |
| R87      | 1-249-393-11 | CARBON      | 10 5% 1/4W   | R158     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R88      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R159     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
| R89      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R160     | 1-247-897-11 | CARBON      | 560K 5% 1/4W |
| R90      | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R161     | 1-215-455-00 | METAL       | 27K 1% 1/4W  |
| R91      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R162     | 1-215-445-00 | METAL       | 10K 1% 1/4W  |
| R92      | 1-249-435-11 | CARBON      | 33K 5% 1/4W  | R163     | 1-215-445-00 | METAL       | 10K 1% 1/4W  |
| R93      | 1-249-393-11 | CARBON      | 10 5% 1/4W   | R164     | 1-215-461-00 | METAL       | 47K 1% 1/4W  |
| R94      | 1-247-848-11 | CARBON      | 5.1K 5% 1/4W | R165     | 1-215-461-00 | METAL       | 47K 1% 1/4W  |
| R95      | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R166     | 1-215-485-00 | METAL       | 470K 1% 1/4W |
| R96      | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R167     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
| R97      | 1-249-433-11 | CARBON      | 22K 5% 1/4W  | R168     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
| R98      | 1-249-409-11 | CARBON      | 220 5% 1/4W  | R169     | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |
| R99      | 1-249-405-11 | CARBON      | 100 5% 1/4W  | R170     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R100     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R171     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
| R101     | 1-249-405-11 | CARBON      | 100 5% 1/4W  | R172     | 1-215-445-00 | METAL       | 10K 1% 1/4W  |
| R102     | 1-249-430-11 | CARBON      | 12K 5% 1/4W  | R173     | 1-215-445-00 | METAL       | 10K 1% 1/4W  |
| R103     | 1-249-424-11 | CARBON      | 3.9K 5% 1/4W | R174     | 1-215-457-00 | METAL       | 33K 1% 1/4W  |
| R104     | 1-247-800-11 | CARBON      | 51 5% 1/4W   | R175     | 1-215-457-00 | METAL       | 33K 1% 1/4W  |
| R105     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R176     | 1-215-481-00 | METAL       | 330K 1% 1/4W |
| R106     | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | R177     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
| R107     | 1-249-424-11 | CARBON      | 3.9K 5% 1/4W | R178     | 1-247-903-00 | CARBON      | 1M 5% 1/4W   |
| R109     | 1-249-437-11 | CARBON      | 47K 5% 1/4W  | R179     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
| R110     | 1-249-430-11 | CARBON      | 12K 5% 1/4W  | R180     | 1-249-433-11 | CARBON      | 22K 5% 1/4W  |
| R111     | 1-249-437-11 | CARBON      | 47K 5% 1/4W  | R181     | 1-249-405-11 | CARBON      | 100 5% 1/4W  |
| R112     | 1-249-426-11 | CARBON      | 5.6K 5% 1/4W | R182     | 1-215-451-00 | METAL       | 18K 1% 1/4W  |
| R113     | 1-249-430-11 | CARBON      | 12K 5% 1/4W  | R183     | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |
| R114     | 1-249-437-11 | CARBON      | 47K 5% 1/4W  |          |              |             |              |

**DA** **EA**

| REF. NO.                         | PART NO.     | DESCRIPTION      | REMARK       | REF. NO. | PART NO.     | DESCRIPTION          | REMARK           |
|----------------------------------|--------------|------------------|--------------|----------|--------------|----------------------|------------------|
| R184                             | 1-215-477-00 | METAL            | 220K 1% 1/4W | RV31     | 1-237-519-21 | RES, ADJ, CERMET 20K |                  |
| R185                             | 1-215-445-00 | METAL            | 10K 1% 1/4W  | RV32     | 1-237-516-21 | RES, ADJ, CERMET 2K  |                  |
| R186                             | 1-215-445-00 | METAL            | 10K 1% 1/4W  |          |              |                      |                  |
| R189                             | 1-215-405-00 | METAL            | 220 1% 1/4W  |          |              |                      |                  |
| R190                             | 1-215-433-00 | METAL            | 3.3K 1% 1/4W |          |              |                      |                  |
| R191                             | 1-215-405-00 | METAL            | 220 1% 1/4W  | S1       | 1-571-908-11 | SWITCH, SLIDE        |                  |
| R192                             | 1-215-433-00 | METAL            | 3.3K 1% 1/4W |          |              |                      |                  |
| R193                             | 1-249-433-11 | CARBON           | 22K 5% 1/4W  |          |              |                      |                  |
| R194                             | 1-249-417-11 | CARBON           | 1K 5% 1/4W   |          |              |                      |                  |
| R195                             | 1-249-417-11 | CARBON           | 1K 5% 1/4W   |          |              |                      |                  |
| R196                             | 1-249-429-11 | CARBON           | 10K 5% 1/4W  |          |              |                      |                  |
| R197                             | 1-249-429-11 | CARBON           | 10K 5% 1/4W  |          |              |                      |                  |
| R198                             | 1-215-475-00 | METAL            | 180K 1% 1/4W |          |              |                      |                  |
| R200                             | 1-215-445-00 | METAL            | 10K 1% 1/4W  |          |              |                      |                  |
| R201                             | 1-249-429-11 | CARBON           | 10K 5% 1/4W  |          |              |                      |                  |
| R202                             | 1-249-429-11 | CARBON           | 10K 5% 1/4W  |          |              |                      |                  |
| R203                             | 1-249-429-11 | CARBON           | 10K 5% 1/4W  | C1       | 1-101-810-00 | CERAMIC              | 100PF 5% 500V    |
| R204                             | 1-249-429-11 | CARBON           | 10K 5% 1/4W  | C2       | 1-124-917-11 | ELECT                | 33MF 20% 25V     |
| R205                             | 1-249-437-11 | CARBON           | 47K 5% 1/4W  | C3       | 1-124-357-11 | ELECT                | 33MF 20% 35V     |
| R206                             | 1-249-417-11 | CARBON           | 1K 5% 1/4W   | C4       | 1-124-046-00 | ELECT                | 10MF 160V        |
| R207                             | 1-249-433-11 | CARBON           | 22K 5% 1/4W  | C5       | 1-124-046-00 | ELECT                | 10MF 160V        |
| R208                             | 1-249-437-11 | CARBON           | 47K 5% 1/4W  | C6       | 1-101-361-00 | CERAMIC              | 150PF 5% 50V     |
| R209                             | 1-249-429-11 | CARBON           | 10K 5% 1/4W  | C7       | 1-124-046-00 | ELECT                | 10MF 160V        |
| R210                             | 1-249-429-11 | CARBON           | 10K 5% 1/4W  | C8       | 1-136-337-11 | FILM                 | 3.3MF 10% 100V   |
| R211                             | 1-249-429-11 | CARBON           | 10K 5% 1/4W  | C12      | 1-102-121-00 | CERAMIC              | 0.0022MF 10% 50V |
| R212                             | 1-249-433-11 | CARBON           | 68K 5% 1/4W  | C13      | 1-136-165-00 | FILM                 | 0.1MF 5% 50V     |
| R220                             | 1-249-439-11 | CARBON           | 8.2K 5% 1/4W | C14      | 1-130-728-00 | FILM                 | 0.0022MF 5% 50V  |
| R221                             | 1-249-428-11 | CARBON           | 8.2K 5% 1/4W | C15      | 1-102-973-00 | CERAMIC              | 100PF 5% 50V     |
| R223                             | 1-249-433-11 | CARBON           | 22K 5% 1/4W  | C16      | 1-124-915-11 | ELECT                | 10MF 20% 25V     |
| R224                             | 1-249-433-11 | CARBON           | 22K 5% 1/4W  | C17      | 1-126-233-11 | ELECT                | 22MF 20% 16V     |
| R229                             | 1-215-443-00 | METAL            | 8.2K 1% 1/4W | C18      | 1-102-973-00 | CERAMIC              | 100PF 5% 50V     |
| R301                             | 1-215-440-00 | METAL            | 6.2K 1% 1/4W | C19      | 1-124-910-11 | ELECT                | 47MF 20% 25V     |
| R302                             | 1-215-445-00 | METAL            | 10K 1% 1/4W  | C20      | 1-136-161-00 | FILM                 | 0.047MF 5% 50V   |
| R303                             | 1-249-419-11 | CARBON           | 1.5K 5% 1/4W | C21      | 1-101-810-00 | CERAMIC              | 100PF 5% 500V    |
|                                  |              |                  |              | C22      | 1-108-700-11 | MYLAR                | 0.047MF 10% 200V |
|                                  |              |                  |              | C23      | 1-123-024-21 | ELECT                | 33MF 160V        |
|                                  |              |                  |              |          |              |                      |                  |
| <b>&lt;VARIABLE RESISTOR&gt;</b> |              |                  |              |          |              |                      |                  |
| RV1                              | 1-237-521-21 | RES, ADJ, CERMET | 100K         | C24      | 1-124-046-00 | ELECT                | 10MF 160V        |
| RV2                              | 1-237-522-21 | RES, ADJ, CERMET | 200K         | C25      | 1-136-541-11 | FILM                 | 1.5MF 200V       |
| RV3                              | 1-237-521-21 | RES, ADJ, CERMET | 100K         | C26      | 1-136-161-00 | FILM                 | 0.047MF 50V      |
| RV4                              | 1-237-519-21 | RES, ADJ, CERMET | 20K          | C27      | 1-108-700-11 | MYLAR                | 0.047MF 200V     |
| RV5                              | 1-237-519-21 | RES, ADJ, CERMET | 20K          | C28      | 1-124-666-11 | ELECT                | 4.7MF 200V       |
| RV6                              | 1-237-518-21 | RES, ADJ, CERMET | 10K          | C29      | 1-101-810-00 | CERAMIC              | 100PF 500V       |
| RV7                              | 1-237-518-21 | RES, ADJ, CERMET | 10K          | C30      | 1-162-135-11 | CERAMIC              | 560PF 10% 2KV    |
| RV10                             | 1-237-519-21 | RES, ADJ, CERMET | 20K          | C31      | 1-136-069-00 | FILM                 | 0.0044MF 3% 2KV  |
| RV11                             | 1-237-519-21 | RES, ADJ, CERMET | 20K          | C32      | 1-136-069-00 | FILM                 | 0.0044MF 3% 2KV  |
| RV12                             | 1-237-519-21 | RES, ADJ, CERMET | 20K          | C33      | 1-124-512-11 | ELECT                | 33MF 20% 50V     |
| RV13                             | 1-237-519-21 | RES, ADJ, CERMET | 20K          | C34      | 1-124-512-11 | ELECT                | 33MF 20% 50V     |
| RV14                             | 1-237-519-21 | RES, ADJ, CERMET | 20K          | C35      | 1-126-163-11 | ELECT                | 4.7MF 20% 50V    |
| RV15                             | 1-237-519-21 | RES, ADJ, CERMET | 20K          | C36      | 1-126-163-11 | ELECT                | 4.7MF 20% 50V    |
| RV16                             | 1-237-519-21 | RES, ADJ, CERMET | 20K          | C37      | 1-161-051-00 | CERAMIC              | 0.01MF 10% 50V   |
| RV17                             | 1-237-517-21 | RES, ADJ, CERMET | 5K           | C39      | 1-162-318-11 | CERAMIC              | 0.001MF 10% 500V |
| RV18                             | 1-237-517-21 | RES, ADJ, CERMET | 5K           | C40      | 1-124-915-11 | ELECT                | 10MF 16V         |
| RV19                             | 1-237-519-21 | RES, ADJ, CERMET | 20K          | C41      | 1-102-244-00 | CERAMIC              | 220PF 10% 500V   |
| RV20                             | 1-237-519-21 | RES, ADJ, CERMET | 20K          | C42      | 1-102-973-00 | CERAMIC              | 100PF 5% 50V     |
| RV21                             | 1-237-519-21 | RES, ADJ, CERMET | 20K          |          |              |                      |                  |
| RV22                             | 1-237-516-21 | RES, ADJ, CERMET | 2K           |          |              |                      |                  |
|                                  |              |                  |              |          |              |                      |                  |
| <b>&lt;DIODE&gt;</b>             |              |                  |              |          |              |                      |                  |
| RV23                             | 1-237-516-21 | RES, ADJ, CERMET | 2K           | D1       | 8-719-110-31 | DIODE RD12ESB2       |                  |
| RV24                             | 1-237-516-21 | RES, ADJ, CERMET | 2K           | D2       | 8-719-911-19 | DIODE ISS119         |                  |
| RV25                             | 1-237-519-21 | RES, ADJ, CERMET | 20K          | D3       | 8-719-911-19 | DIODE ISS119         |                  |
| RV26                             | 1-237-519-21 | RES, ADJ, CERMET | 20K          | D4       | 8-719-911-19 | DIODE ISS119         |                  |
| RV27                             | 1-237-519-21 | RES, ADJ, CERMET | 20K          | D7       | 8-719-110-03 | DIODE RD7.5ESB2      |                  |
| RV28                             | 1-237-519-21 | RES, ADJ, CERMET | 20K          | D8       | 8-719-300-76 | DIODE RH-1A          |                  |
| RV29                             | 1-237-519-21 | RES, ADJ, CERMET | 20K          | D9       | 8-719-928-08 | DIODE BRD28-08S      |                  |
| RV30                             | 1-237-519-21 | RES, ADJ, CERMET | 20K          |          |              |                      |                  |

**EA** **W**

| REF. NO. | PART NO.      | DESCRIPTION            | REMARK        | REF. NO. | PART NO.     | DESCRIPTION                   | REMARK        |
|----------|---------------|------------------------|---------------|----------|--------------|-------------------------------|---------------|
| D10      | 8-719-300-76  | DIODE RH-1A            |               | R29      | 1-249-429-11 | CARBON                        | 10K 5% 1/4W   |
| D11      | 8-719-300-76  | DIODE RH-1A            |               | R30      | 1-249-429-11 | CARBON                        | 10K 5% 1/4W   |
| D12      | 8-719-300-76  | DIODE RH-1A            |               | R31      | 1-247-868-11 | CARBON                        | 36K 5% 1/4W   |
| D13      | 8-719-109-75  | DIODE RD4.3ESB2        |               | R32      | 1-249-429-11 | CARBON                        | 10K 5% 1/4W   |
| D14      | 8-719-109-75  | DIODE RD4.3ESB2        |               | R33      | 1-249-427-11 | CARBON                        | 6.8K 5% 1/4W  |
| D15      | 8-719-911-19  | DIODE ISS119           |               | R34      | 1-215-433-00 | METAL                         | 3.3K 1% 1/4W  |
| D16      | 8-719-911-19  | DIODE ISS119           |               | R35      | 1-215-435-00 | METAL                         | 3.9K 1% 1/4W  |
|          |               |                        |               | R36      | 1-249-429-11 | CARBON                        | 10K 5% 1/4W   |
|          |               |                        |               | R37      | 1-249-441-11 | CARBON                        | 100K 5% 1/4W  |
| EA1      | *1-568-536-11 | PLUG (MINIATURE DY) 6P |               | R38      | 1-249-429-11 | CARBON                        | 10K 5% 1/4W   |
|          |               |                        |               | R39      | 1-215-469-00 | METAL                         | 100K 1% 1/4W  |
|          |               |                        |               | R40      | 1-249-429-11 | CARBON                        | 10K 5% 1/4W   |
|          |               |                        |               | R41      | 1-249-429-11 | CARBON                        | 10K 5% 1/4W   |
|          |               |                        |               | R42      | 1-215-876-00 | METAL OXIDE                   | 15K 5% 1W F   |
| IC1      | 8-759-100-75  | IC UPC1394C            |               | R43      | 1-215-859-00 | METAL OXIDE                   | 22 5% 1W F    |
| IC2      | 8-759-145-58  | IC UPC4558C            |               | R44      | 1-216-349-00 | METAL OXIDE                   | 1 5% 1W F     |
|          |               |                        |               | R45      | 1-249-417-11 | CARBON                        | 1K 5% 1/4W    |
|          |               |                        |               | R46      | 1-249-417-11 | CARBON                        | 1K 5% 1/4W    |
|          |               |                        |               | R47      | 1-216-463-00 | METAL OXIDE                   | 12K 5% 2W F   |
| L1       | 1-459-433-00  | COIL (WITH CORE)       |               | R48      | 1-216-346-00 | METAL OXIDE                   | 0.56 5% 1W F  |
| L2       | 1-459-433-00  | COIL (WITH CORE)       |               | R49      | 1-249-382-11 | CARBON                        | 1.2 5% 1/4W   |
| L3       | 1-459-433-00  | COIL (WITH CORE)       |               | R50      | 1-247-826-00 | CARBON                        | 620 5% 1/4W   |
| L4       | 1-459-111-00  | COIL, DRAM CORE (CDI)  |               | R51      | 1-247-826-00 | CARBON                        | 620 5% 1/4W   |
| L5       | 1-459-111-00  | COIL, DRAM CORE (CDI)  |               | R52      | 1-215-445-00 | METAL                         | 10K 1% 1/4W   |
|          |               |                        |               | R53      | 1-215-445-00 | METAL                         | 10K 1% 1/4W   |
|          |               |                        |               | R54      | 1-215-447-00 | METAL                         | 12K 1% 1/4W   |
|          |               |                        |               | R55      | 1-249-391-11 | CARBON                        | 6.8 5% 1/4W F |
|          |               |                        |               | R56      | 1-215-445-00 | METAL                         | 10K 1% 1/4W   |
| Q1       | 8-729-119-78  | TRANSISTOR 2SC2785-HFE |               | R57      | 1-215-445-00 | METAL                         | 10K 1% 1/4W   |
| Q2       | 8-729-697-92  | TRANSISTOR 2SA979-G    |               | R58      | 1-249-405-11 | CARBON                        | 100 5% 1/4W   |
| Q3       | 8-729-140-50  | TRANSISTOR 2SC3209LK   |               | R59      | 1-249-419-11 | CARBON                        | 1.5K 5% 1/4W  |
| Q4       | 8-729-303-61  | TRANSISTOR 2SC3851-G   |               | R60      | 1-249-419-11 | CARBON                        | 1.5K 5% 1/4W  |
| Q5       | 8-729-304-07  | TRANSISTOR 2SA1488-Y   |               | R61      | 1-215-882-00 | METAL OXIDE                   | 22 5% 2W F    |
| Q10      | 8-729-119-80  | TRANSISTOR 2SC2688-LK  |               | R62      | 1-215-882-00 | METAL OXIDE                   | 22 5% 2W F    |
| Q11      | 8-729-175-22  | TRANSISTOR 2SC2752-L   |               | R63      | 1-216-361-00 | METAL OXIDE                   | 0.22 5% 2W F  |
| Q12      | 8-729-200-17  | TRANSISTOR 2SA1091-0   |               |          |              |                               |               |
| Q13      | 8-729-119-80  | TRANSISTOR 2SC2688-LK  |               |          |              |                               |               |
| Q14      | 8-729-202-53  | TRANSISTOR 2SD1556-LB  |               |          |              |                               |               |
| Q15      | 8-729-313-42  | TRANSISTOR 2SD1134-C   |               |          |              |                               |               |
| Q16      | 8-729-385-82  | TRANSISTOR 2SB858-C    |               |          |              |                               |               |
|          |               |                        |               | T1       | 1-460-067-11 | HLT                           |               |
|          |               |                        |               | T2       | 1-407-850-00 | DLT                           |               |
|          |               |                        |               | T3       | 1-437-078-00 | TRANSFORMER, HORIZONTAL DRIVE |               |
|          |               |                        |               | T4       | 1-437-079-00 | TRANSFORMER, HORIZONTAL DRIVE |               |
|          |               |                        |               | T5       | 1-439-383-11 | HOT                           |               |
| R1       | 1-249-418-11  | CARBON                 | 1.2K 5% 1/4W  |          |              |                               |               |
| R2       | 1-249-425-11  | CARBON                 | 4.7K 5% 1/4W  |          |              |                               |               |
| R3       | 1-249-429-11  | CARBON                 | 10K 5% 1/4W   |          |              |                               |               |
| R4       | 1-249-429-11  | CARBON                 | 10K 5% 1/4W   |          |              |                               |               |
| R5       | 1-249-429-11  | CARBON                 | 10K 5% 1/4W   |          |              |                               |               |
| R6       | 1-249-429-11  | CARBON                 | 10K 5% 1/4W   |          |              |                               |               |
| R7       | 1-249-421-11  | CARBON                 | 2.2K 5% 1/4W  |          |              |                               |               |
| R8       | 1-249-438-11  | CARBON                 | 56K 5% 1/4W   |          |              |                               |               |
| R9       | 1-249-429-11  | CARBON                 | 10K 5% 1/4W   |          |              |                               |               |
| R10      | 1-249-418-11  | CARBON                 | 1.2K 5% 1/4W  |          |              |                               |               |
| R11      | 1-249-448-11  | CARBON                 | 1.2 5% 1/4W F |          |              |                               |               |
| R12      | 1-249-448-11  | CARBON                 | 1.2 5% 1/4W F |          |              |                               |               |
| R13      | 1-249-417-11  | CARBON                 | 1K 5% 1/4W    |          |              |                               |               |
| R14      | 1-215-887-00  | METAL OXIDE            | 150 5% 2W F   |          |              |                               |               |
| R15      | 1-249-429-11  | CARBON                 | 10K 5% 1/4W   |          |              |                               |               |
| R22      | 1-249-417-11  | CARBON                 | 1K 5% 1/4W    | R1       | 1-214-702-00 | METAL                         | 75 1% 1/4W    |
| R23      | 1-215-445-00  | METAL                  | 10K 1% 1/4W   | R2       | 1-214-702-00 | METAL                         | 75 1% 1/4W    |
| R24      | 1-215-445-00  | METAL                  | 10K 1% 1/4W   | R3       | 1-214-702-00 | METAL                         | 75 1% 1/4W    |
| R25      | 1-215-431-00  | METAL                  | 2.7K 1% 1/4W  |          |              |                               |               |
| R26      | 1-215-431-00  | METAL                  | 2.7K 1% 1/4W  |          |              |                               |               |
| R27      | 1-249-435-11  | CARBON                 | 33K 5% 1/4W   |          |              |                               |               |
| R28      | 1-215-461-00  | METAL                  | 47K 1% 1/4W   |          |              |                               |               |



| REF. NO.      | PART NO.                    | DESCRIPTION          | REMARK  | REF. NO. | PART NO.      | DESCRIPTION      | REMARK |
|---------------|-----------------------------|----------------------|---------|----------|---------------|------------------|--------|
| *****         |                             |                      |         |          |               |                  |        |
| *1-647-257-11 | HW BOARD<br>*****           |                      |         | D6       | 8-719-404-46  | DIODE MA110      |        |
| D1            | *4-026-910-00               | HOLDER, LED          |         | D7       | 8-719-404-46  | DIODE MA110      |        |
| D2            | *4-026-910-00               | HOLDER, LED          |         | D8       | 8-719-404-46  | DIODE MA110      |        |
|               |                             |                      |         | D9       | 8-719-404-46  | DIODE MA110      |        |
|               |                             |                      |         | D10      | 8-719-404-46  | DIODE MA110      |        |
|               |                             |                      |         | D11      | 8-719-404-46  | DIODE MA110      |        |
|               |                             |                      |         | D12      | 8-719-938-68  | DIODE GL3HY8     |        |
| D101          | 8-719-938-68                | DIODE GL3HY8         |         | D13      | *4-374-937-01 | HOLDER, LED; D12 |        |
| D102          | 8-719-812-41                | DIODE TLR124         |         |          | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         |          | *4-374-937-01 | HOLDER, LED; D13 |        |
|               |                             |                      |         | D14      | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         |          | *4-374-937-01 | HOLDER, LED; D14 |        |
| R101          | 1-216-065-00                | METAL GLAZE          | 4.7K 5% | D15      | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      | 1/10W   |          | *4-374-937-01 | HOLDER, LED; D15 |        |
|               |                             |                      |         | D16      | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         | D17      | *4-374-937-01 | HOLDER, LED; D16 |        |
|               |                             |                      |         |          | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         | D18      | *4-374-937-01 | HOLDER, LED; D17 |        |
|               |                             |                      |         |          | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         |          | *4-374-937-01 | HOLDER, LED; D18 |        |
|               |                             |                      |         | D19      | 8-719-938-68  | DIODE GL3HY8     |        |
| S101          | 1-570-566-11                | SWITCH, PUSH (4 KEY) |         |          | *4-374-937-01 | HOLDER, LED; D19 |        |
| S102          | 1-570-566-11                | SWITCH, PUSH (4 KEY) |         | D20      | 8-719-938-68  | DIODE GL3HY8     |        |
| S103          | 1-570-566-11                | SWITCH, PUSH (4 KEY) |         |          | *4-374-937-01 | HOLDER, LED; D20 |        |
| S104          | 1-570-566-11                | SWITCH, PUSH (4 KEY) |         | D21      | 8-719-938-68  | DIODE GL3HY8     |        |
| *****         |                             |                      |         |          |               |                  |        |
| *1-627-682-11 | HH BOARD<br>*****           |                      |         | D22      | *4-374-937-01 | HOLDER, LED; D21 |        |
|               |                             |                      |         |          | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         | D23      | *4-374-937-01 | DIODE GL3HY8     |        |
|               |                             |                      |         |          | 8-719-938-68  | HOLDER, LED; D23 |        |
|               |                             |                      |         | D24      | *4-374-937-01 | HOLDER, LED; D22 |        |
|               |                             |                      |         |          | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         | D25      | *4-374-937-01 | HOLDER, LED; D24 |        |
|               |                             |                      |         |          | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         | D26      | *4-374-937-01 | HOLDER, LED; D25 |        |
|               |                             |                      |         |          | 8-719-404-46  | DIODE MA110      |        |
|               |                             |                      |         | D27      | 8-719-404-46  | DIODE MA110      |        |
|               |                             |                      |         | D28      | 8-719-404-46  | DIODE MA110      |        |
|               |                             |                      |         | D29      | 8-719-404-46  | DIODE MA110      |        |
|               |                             |                      |         | D30      | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         |          | *4-374-937-01 | HOLDER, LED; D30 |        |
| *****         |                             |                      |         |          |               |                  |        |
| *1-647-258-11 | HX BOARD<br>*****           |                      |         | D31      | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         |          | *4-374-937-01 | HOLDER, LED; D31 |        |
|               |                             |                      |         | D32      | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         |          | *4-374-937-01 | HOLDER, LED; D32 |        |
|               |                             |                      |         | D33      | 8-719-938-68  | DIODE GL3HY8     |        |
| S1            | 1-692-470-11                | SWITCH, PUSH (4 KEY) |         |          |               |                  |        |
| *****         |                             |                      |         |          |               |                  |        |
| A-1371-895-A  | HY BOARD, COMPLETE<br>***** |                      |         | D34      | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         |          | *4-374-937-01 | HOLDER, LED; D34 |        |
|               |                             |                      |         | D35      | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         |          | *4-374-937-01 | HOLDER, LED; D35 |        |
|               |                             |                      |         | D36      | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         |          | *4-374-937-01 | HOLDER, LED; D36 |        |
|               |                             |                      |         | D37      | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         |          | *4-374-937-01 | HOLDER, LED; D37 |        |
|               |                             |                      |         | D38      | 8-719-938-68  | DIODE GL3HY8     |        |
| C1            | 1-124-584-00                | ELECT                | 100MF   | 20%      | 10V           |                  |        |
| C2            | 1-124-584-00                | ELECT                | 100MF   | 20%      | 10V           |                  |        |
| C3            | 1-124-584-00                | ELECT                | 100MF   | 20%      | 10V           |                  |        |
| C4            | 1-163-031-11                | CERAMIC CHIP         | 0.01MF  |          | 50V           |                  |        |
| C5            | 1-163-031-11                | CERAMIC CHIP         | 0.01MF  |          | 50V           |                  |        |
| C6            | 1-163-031-11                | CERAMIC CHIP         | 0.01MF  |          | 50V           |                  |        |
|               |                             |                      |         | D39      | *4-374-937-01 | HOLDER, LED; D38 |        |
|               |                             |                      |         | D40      | 8-719-404-46  | DIODE MA110      |        |
|               |                             |                      |         | D41      | 8-719-404-46  | DIODE MA110      |        |
|               |                             |                      |         |          | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         |          | *4-374-937-01 | HOLDER, LED; D41 |        |
|               |                             |                      |         | D42      | 8-719-938-68  | DIODE GL3HY8     |        |
|               |                             |                      |         |          | *4-374-937-01 | HOLDER, LED; D42 |        |
| D1            | 8-719-404-46                | DIODE MA110          |         | D43      | 8-719-938-68  | DIODE GL3HY8     |        |
| D2            | 8-719-404-46                | DIODE MA110          |         |          | *4-374-937-01 | HOLDER, LED; D43 |        |
| D3            | 8-719-404-46                | DIODE MA110          |         |          | 8-719-938-68  | DIODE GL3HY8     |        |
| D4            | 8-719-404-46                | DIODE MA110          |         |          | *4-374-937-01 | HOLDER, LED; D44 |        |
| D5            | 8-719-404-46                | DIODE MA110          |         |          | 8-719-938-68  | DIODE GL3HY8     |        |

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| REF. NO.    | PART NO.      | DESCRIPTION        | REMARK     | REF. NO.     | PART NO.     | DESCRIPTION               | REMARK       |  |  |
|-------------|---------------|--------------------|------------|--------------|--------------|---------------------------|--------------|--|--|
| D45         | *4-374-937-01 | HOLDER, LED; D44   |            | JR15         | 1-216-295-00 | METAL GLAZE               | 0 5% 1/10W   |  |  |
| D46         | 8-719-404-46  | DIODE MA110        |            | JR16         | 1-216-295-00 | METAL GLAZE               | 0 5% 1/10W   |  |  |
| D47         | 8-719-404-46  | DIODE MA110        |            | JR17         | 1-216-295-00 | METAL GLAZE               | 0 5% 1/10W   |  |  |
| D48         | 8-719-404-46  | DIODE MA110        |            | JR18         | 1-216-295-00 | METAL GLAZE               | 0 5% 1/10W   |  |  |
| D49         | 8-719-404-46  | DIODE MA110        |            | <TRANSISTOR> |              |                           |              |  |  |
| D50         | 8-719-938-68  | DIODE GL3HY8       |            | Q1           | 8-729-175-72 | TRANSISTOR 2SC2757-T33    |              |  |  |
| D51         | *4-374-937-01 | HOLDER, LED; D50   |            | <RESISTOR>   |              |                           |              |  |  |
| D52         | 8-719-404-46  | DIODE MA110        |            | R1           | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D53         | 8-719-404-46  | DIODE MA110        |            | R2           | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D54         | 8-719-404-46  | DIODE MA110        |            | R3           | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D55         | 8-719-404-46  | DIODE MA110        |            | R4           | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D56         | 8-719-404-46  | DIODE MA110        |            | R5           | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D57         | 8-719-404-46  | DIODE MA110        |            | R6           | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D58         | 8-719-404-46  | DIODE MA110        |            | R7           | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D59         | 8-719-404-46  | DIODE MA110        |            | R8           | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D60         | 8-719-404-46  | DIODE MA110        |            | R9           | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D61         | 8-719-404-46  | DIODE MA110        |            | R10          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D62         | 8-719-404-46  | DIODE MA110        |            | R11          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D63         | 8-719-938-68  | DIODE GL3HY8       |            | R12          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D64         | *4-374-937-01 | HOLDER, LED; D63   |            | R13          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D65         | 8-719-938-68  | DIODE GL3HY8       |            | R14          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D66         | *4-374-937-01 | HOLDER, LED; D65   |            | R15          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D67         | 8-719-938-68  | DIODE GL3HY8       |            | R16          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D68         | *4-374-937-01 | HOLDER, LED; D66   |            | R17          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| D69         | 8-719-938-68  | DIODE GL3HY8       |            | R18          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
|             | *4-374-937-01 | HOLDER, LED; D67   |            | R19          | 1-216-045-00 | METAL GLAZE               | 680 5% 1/10W |  |  |
|             | 8-719-938-68  | DIODE GL3HY8       |            | R20          | 1-216-033-00 | METAL GLAZE               | 220 5% 1/10W |  |  |
|             | *4-374-937-01 | HOLDER, LED; D68   |            | R21          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
|             | 8-719-938-68  | DIODE GL3HY8       |            | R22          | 1-216-033-00 | METAL GLAZE               | 220 5% 1/10W |  |  |
|             | *4-374-937-01 | HOLDER, LED; D68   |            | R23          | 1-216-049-00 | METAL GLAZE               | 1K 5% 1/10W  |  |  |
|             | 8-719-938-68  | DIODE GL3HY8       |            | R24          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
|             | *4-374-937-01 | HOLDER, LED; D69   |            | R25          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| <CONNECTOR> |               |                    |            |              |              |                           |              |  |  |
| HY1         | *1-566-045-11 | PIN, CONNECTOR 6P  |            | R26          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| HY2         | *1-566-047-11 | PIN, CONNECTOR 8P  |            | R27          | 1-216-049-00 | METAL GLAZE               | 1K 5% 1/10W  |  |  |
| HY3         | *1-566-052-11 | PIN, CONNECTOR 13P |            | R28          | 1-216-049-00 | METAL GLAZE               | 1K 5% 1/10W  |  |  |
| HY4         | *1-566-047-11 | PIN, CONNECTOR 8P  |            | R29          | 1-216-049-00 | METAL GLAZE               | 1K 5% 1/10W  |  |  |
|             |               |                    |            | R30          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| <IC>        |               |                    |            |              |              |                           |              |  |  |
| IC1         | 8-757-991-00  | IC CX-7991         |            | R31          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| IC2         | 8-757-991-00  | IC CX-7991         |            | R32          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| IC3         | 8-757-991-00  | IC CX-7991         |            | R33          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
|             |               |                    |            | R34          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
|             |               |                    |            | R35          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| <RESISTOR>  |               |                    |            |              |              |                           |              |  |  |
| JR1         | 1-216-295-00  | METAL GLAZE        | 0 5% 1/10W | R36          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| JR2         | 1-216-295-00  | METAL GLAZE        | 0 5% 1/10W | R37          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| JR3         | 1-216-295-00  | METAL GLAZE        | 0 5% 1/10W | R38          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| JR4         | 1-216-295-00  | METAL GLAZE        | 0 5% 1/10W | R39          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| JR5         | 1-216-295-00  | METAL GLAZE        | 0 5% 1/10W | R40          | 1-216-043-00 | METAL GLAZE               | 560 5% 1/10W |  |  |
| JR6         | 1-216-295-00  | METAL GLAZE        | 0 5% 1/10W | <SWITCH>     |              |                           |              |  |  |
| JR7         | 1-216-295-00  | METAL GLAZE        | 0 5% 1/10W | S1           | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY) |              |  |  |
| JR8         | 1-216-295-00  | METAL GLAZE        | 0 5% 1/10W | S2           | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY) |              |  |  |
| JR9         | 1-216-295-00  | METAL GLAZE        | 0 5% 1/10W | S3           | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY) |              |  |  |
| JR10        | 1-216-295-00  | METAL GLAZE        | 0 5% 1/10W | S4           | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY) |              |  |  |
| JR11        | 1-216-295-00  | METAL GLAZE        | 0 5% 1/10W | S5           | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY) |              |  |  |
| JR12        | 1-216-295-00  | METAL GLAZE        | 0 5% 1/10W | S6           | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY) |              |  |  |
| JR13        | 1-216-295-00  | METAL GLAZE        | 0 5% 1/10W |              |              |                           |              |  |  |
| JR14        | 1-216-295-00  | METAL GLAZE        | 0 5% 1/10W |              |              |                           |              |  |  |



| REF. NO. | PART NO.     | DESCRIPTION                     | REMARK | REF. NO. | PART NO.     | DESCRIPTION         | REMARK  |
|----------|--------------|---------------------------------|--------|----------|--------------|---------------------|---------|
| S7       | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C63      | 1-126-769-21 | ELECT CHIP 100MF    | 20% 14V |
| S8       | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C64      | 1-126-769-21 | ELECT CHIP 100MF    | 20% 14V |
| S9       | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C65      | 1-126-769-21 | ELECT CHIP 100MF    | 20% 14V |
| S10      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C66      | 1-126-769-21 | ELECT CHIP 100MF    | 20% 14V |
| S11      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C67      | 1-126-769-21 | ELECT CHIP 100MF    | 20% 14V |
| S12      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C68      | 1-126-769-21 | ELECT CHIP 100MF    | 20% 14V |
| S13      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C81      | 1-126-769-21 | ELECT CHIP 100MF    | 20% 14V |
| S14      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C91      | 1-126-769-21 | ELECT CHIP 100MF    | 20% 14V |
| S15      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C92      | 1-126-769-21 | ELECT CHIP 100MF    | 20% 14V |
| S16      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C101     | 1-126-769-21 | ELECT CHIP 100MF    | 20% 14V |
| S17      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C102     | 1-126-769-21 | ELECT CHIP 100MF    | 20% 14V |
| S18      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C111     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| S19      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C112     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| S20      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C121     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| S21      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C122     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| S22      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C123     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| S23      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C124     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| S24      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C125     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| S25      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C126     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| S26      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C127     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| S27      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C128     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| S28      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C141     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| S29      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C142     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| S30      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C143     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| S31      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C144     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| S32      | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY)       |        | C145     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
|          |              |                                 |        | C146     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
|          |              |                                 | *****  | C147     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
|          |              |                                 |        | C148     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
|          |              | A-1371-896-A HZ BOARD, COMPLETE |        | C149     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
|          |              | *****                           |        | C161     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
|          |              | <CAPACITOR>                     |        | C162     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C1       | 1-163-031-11 | CERAMIC CHIP 0.01MF             | 50V    | C163     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C2       | 1-163-031-11 | CERAMIC CHIP 0.01MF             | 50V    | C164     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C3       | 1-163-031-11 | CERAMIC CHIP 0.01MF             | 50V    | C165     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C4       | 1-163-031-11 | CERAMIC CHIP 0.01MF             | 50V    | C166     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C5       | 1-163-031-11 | CERAMIC CHIP 0.01MF             | 50V    | C167     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C6       | 1-163-031-11 | CERAMIC CHIP 0.01MF             | 50V    | C168     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C7       | 1-163-031-11 | CERAMIC CHIP 0.01MF             | 50V    | C169     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C8       | 1-163-031-11 | CERAMIC CHIP 0.01MF             | 50V    | C170     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C9       | 1-163-031-11 | CERAMIC CHIP 0.01MF             | 50V    | C171     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C10      | 1-163-031-11 | CERAMIC CHIP 0.01MF             | 50V    | C172     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C11      | 1-163-031-11 | CERAMIC CHIP 0.01MF             | 50V    | C173     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C12      | 1-163-031-11 | CERAMIC CHIP 0.01MF             | 50V    | C174     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C13      | 1-163-227-11 | CERAMIC CHIP 10PF               | 0.5PF  | C175     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C14      | 1-163-239-11 | CERAMIC CHIP 33PF               | 5%     | C176     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C15      | 1-163-097-00 | CERAMIC CHIP 15PF               | 5%     | C177     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C16      | 1-163-031-11 | CERAMIC CHIP 0.01MF             | 50V    | C178     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C17      | 1-163-097-00 | CERAMIC CHIP 15PF               | 5%     | C179     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C18      | 1-163-097-00 | CERAMIC CHIP 15PF               | 5%     | C181     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C19      | 1-124-779-00 | ELECT CHIP 10MF                 | 20%    | C182     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C21      | 1-126-103-11 | ELECT                           | 470MF  | C183     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C22      | 1-126-103-11 | ELECT                           | 470MF  | C191     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C23      | 1-126-204-11 | ELECT CHIP                      | 47MF   | C192     | 1-163-031-11 | CERAMIC CHIP 0.01MF | 50V     |
| C24      | 1-126-204-11 | ELECT CHIP                      | 47MF   |          |              | <DIODE>             |         |
| C41      | 1-126-103-11 | ELECT                           | 470MF  | D1       | 8-719-109-88 | DIODE RD5.6ESB1     |         |
| C42      | 1-126-103-11 | ELECT                           | 470MF  | D2       | 8-719-109-88 | DIODE RD5.6ESB1     |         |
| C43      | 1-126-204-11 | ELECT CHIP                      | 47MF   | D3       | 8-719-109-88 | DIODE RD5.6ESB1     |         |
| C44      | 1-126-204-11 | ELECT CHIP                      | 47MF   | D4       | 8-719-109-88 | DIODE RD5.6ESB1     |         |
| C45      | 1-126-204-11 | ELECT CHIP                      | 47MF   | D5       | 8-719-109-88 | DIODE RD5.6ESB1     |         |
| C61      | 1-126-103-11 | ELECT                           | 470MF  | D6       | 8-719-109-88 | DIODE RD5.6ESB1     |         |
| C62      | 1-126-769-21 | ELECT CHIP                      | 100MF  | D7       | 8-719-109-88 | DIODE RD5.6ESB1     |         |

| REF.NO. | PART NO.      | DESCRIPTION            | REMARK | REF.NO. | PART NO.     | DESCRIPTION             | REMARK       |
|---------|---------------|------------------------|--------|---------|--------------|-------------------------|--------------|
| D8      | 8-719-109-88  | DIODE RD5.6ESB1        |        | L1      | 1-408-409-00 | INDUCTOR                | 10UH         |
| D9      | 8-719-109-88  | DIODE RD5.6ESB1        |        | L2      | 1-408-409-00 | INDUCTOR                | 10UH         |
| D10     | 8-719-109-88  | DIODE RD5.6ESB1        |        | L3      | 1-410-211-51 | INDUCTOR CHIP           | 39UH         |
| D11     | 8-719-109-88  | DIODE RD5.6ESB1        |        |         |              |                         | <TRANSISTOR> |
| D12     | 8-719-109-88  | DIODE RD5.6ESB1        |        |         |              |                         |              |
| D13     | 8-719-109-88  | DIODE RD5.6ESB1        |        | Q2      | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| D14     | 8-719-109-88  | DIODE RD5.6ESB1        |        | Q3      | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| D15     | 8-719-109-88  | DIODE RD5.6ESB1        |        | Q4      | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| D17     | 8-719-104-34  | DIODE 1S2836           |        | Q5      | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| D18     | 8-719-400-18  | DIODE MA152WK          |        | Q6      | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| D19     | 8-719-400-18  | DIODE MA152WK          |        | Q7      | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| D21     | 8-719-106-23  | DIODE RD7.5M-B2        |        | Q8      | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| D22     | 8-719-106-23  | DIODE RD7.5M-B2        |        | Q9      | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
|         |               |                        |        | Q10     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
|         |               |                        |        | Q11     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
|         |               |                        |        |         |              |                         | <CONNECTOR>  |
| HZ1     | *1-566-064-11 | PIN, CONNECTOR 12P     |        | Q12     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| HZ2     | *1-566-062-11 | PIN, CONNECTOR 10P     |        | Q13     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| HZ3     | *1-566-060-11 | PIN, CONNECTOR 8P      |        | Q14     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| HZ4     | *1-566-064-11 | PIN, CONNECTOR 12P     |        | Q15     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| HZ5     | *1-566-058-11 | PIN, CONNECTOR 6P      |        | Q16     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| HZ6     | *1-566-064-11 | PIN, CONNECTOR 12P     |        | Q17     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| HZ7     | *1-566-064-11 | PIN, CONNECTOR 12P     |        | Q18     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| HZ8     | *1-566-064-11 | PIN, CONNECTOR 12P     |        | Q19     | 8-729-122-63 | TRANSISTOR 2SA1226-E4   |              |
| HZ9     | *1-566-058-11 | PIN, CONNECTOR 6P      |        | Q20     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| HZ10    | *1-566-062-11 | PIN, CONNECTOR 10P     |        | Q21     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| HZ11    | *1-566-062-11 | PIN, CONNECTOR 10P     |        | Q22     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| HZ12A   | *1-566-065-11 | PIN, CONNECTOR 13P     |        | Q23     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| HZ12B   | *1-566-065-11 | PIN, CONNECTOR 13P     |        | Q24     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
|         |               |                        |        | Q25     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
|         |               |                        |        | Q26     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
|         |               |                        |        |         |              |                         | <IC>         |
| IC1     | 8-759-939-25  | IC SN75176BP           |        | Q27     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| IC2     | 8-759-939-25  | IC SN75176BP           |        | Q28     | 8-729-901-06 | TRANSISTOR DTA144EK     |              |
| IC3     | 8-759-164-54  | IC X25040              |        | Q29     | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| IC4     | 8-759-995-76  | IC PST529C             |        | Q30     | 8-729-122-63 | TRANSISTOR 2SA1226-E4   |              |
| IC5     | 8-759-981-48  | IC TL082M              |        | Q900    | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |              |
| IC6     | 8-759-112-72  | IC UPD6142G-101        |        | Q901    | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6 |              |
| IC7     | 8-759-239-88  | IC TC74HCT02AF         |        | Q902    | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| IC8     | 8-759-240-03  | IC TC74HCT32AF         |        | Q903    | 8-729-901-01 | TRANSISTOR DTC144EK     |              |
| IC9     | 8-759-233-66  | IC TC74HCT04AF         |        |         |              |                         | <RESISTOR>   |
| IC10    | 8-759-981-48  | IC TL082M              |        |         |              |                         |              |
| IC11    | 8-759-240-65  | IC TC74HCT139AF        |        | JR1     | 1-216-295-00 | METAL GLAZE 0           | 5% 1/10W     |
| IC12    | 8-759-009-05  | IC MC14051BF           |        | JR2     | 1-216-295-00 | METAL GLAZE 0           | 5% 1/10W     |
| IC13    | 8-759-938-68  | IC CXD1095Q            |        | JR3     | 1-216-295-00 | METAL GLAZE 0           | 5% 1/10W     |
| IC14    | 8-759-981-48  | IC TL082M              |        | JR4     | 1-216-295-00 | METAL GLAZE 0           | 5% 1/10W     |
| IC15    | 8-759-238-69  | IC TC74HC299AF-TP1     |        | R1      | 1-216-091-00 | METAL GLAZE 56K         | 5% 1/10W     |
| IC16    | 8-759-009-05  | IC MC14051BF           |        | R2      | 1-216-091-00 | METAL GLAZE 56K         | 5% 1/10W     |
| IC17    | 8-759-239-88  | IC TC74HCT02AF         |        | R3      | 1-249-417-11 | CARBON 1K               | 5% 1/4W      |
| IC18    | 8-759-981-48  | IC TL082M              |        | R4      | 1-216-025-00 | METAL GLAZE 100         | 5% 1/10W     |
| IC19    | 8-759-981-48  | IC TL082M              |        | R5      | 1-216-073-00 | METAL GLAZE 10K         | 5% 1/10W     |
| IC20    | 8-759-518-73  | IC DAC8043GP           |        | R6      | 1-216-073-00 | METAL GLAZE 10K         | 5% 1/10W     |
| IC21    | 8-759-518-76  | IC REFO2EZ             |        | R7      | 1-249-417-11 | CARBON 1K               | 5% 1/4W      |
| IC22    | 8-759-981-48  | IC TL082M              |        | R8      | 1-216-091-00 | METAL GLAZE 56K         | 5% 1/10W     |
| IC23    | 8-759-981-48  | IC TL082M              |        | R9      | 1-249-417-11 | CARBON 1K               | 5% 1/4W      |
| IC24    | 8-759-164-55  | IC HD6475368CP-BVM     |        | R10     | 1-216-090-00 | METAL GLAZE 51K         | 5% 1/10W     |
|         |               |                        |        | R11     | 1-216-080-00 | METAL GLAZE 20K         | 5% 1/10W     |
|         |               |                        |        |         |              |                         | <IC SOCKET>  |
| IC53    | 1-526-652-21  | SOCKET, IC (DP) 8P     |        | R12     | 1-216-073-00 | METAL GLAZE 10K         | 5% 1/10W     |
| IC54    | 1-540-069-11  | SOCKET, IC (IC113) 84P |        | R13     | 1-216-091-00 | METAL GLAZE 56K         | 5% 1/10W     |
|         |               |                        |        | R14     | 1-249-417-11 | CARBON 1K               | 5% 1/4W      |
|         |               |                        |        | R15     | 1-216-091-00 | METAL GLAZE 56K         | 5% 1/10W     |
|         |               |                        |        | R16     | 1-249-417-11 | CARBON 1K               | 5% 1/4W      |
|         |               |                        |        |         |              |                         | <COIL>       |
|         |               |                        |        | R17     | 1-216-073-00 | METAL GLAZE 10K         | 5% 1/10W     |
|         |               |                        |        | R18     | 1-216-073-00 | METAL GLAZE 10K         | 5% 1/10W     |

**HZ** **HA**

| REF. NO. | PART NO.     | DESCRIPTION | REMARK  | REF. NO. | PART NO.               | DESCRIPTION   | REMARK                    |         |       |  |  |  |
|----------|--------------|-------------|---------|----------|------------------------|---------------|---------------------------|---------|-------|--|--|--|
| R19      | 1-249-422-11 | CARBON      | 2.7K 5% | 1/4W     | R84                    | 1-216-073-00  | METAL GLAZE               | 10K 5%  | 1/10W |  |  |  |
| R20      | 1-216-091-00 | METAL GLAZE | 56K 5%  | 1/10W    | R85                    | 1-216-073-00  | METAL GLAZE               | 10K 5%  | 1/10W |  |  |  |
| R21      | 1-249-417-11 | CARBON      | 1K 5%   | 1/4W     | R86                    | 1-216-073-00  | METAL GLAZE               | 10K 5%  | 1/10W |  |  |  |
| R22      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | R87                    | 1-216-073-00  | METAL GLAZE               | 10K 5%  | 1/10W |  |  |  |
| R23      | 1-249-422-11 | CARBON      | 2.7K 5% | 1/4W     | R88                    | 1-216-073-00  | METAL GLAZE               | 10K 5%  | 1/10W |  |  |  |
| R24      | 1-216-097-00 | METAL GLAZE | 100K 5% | 1/10W    | R89                    | 1-216-097-00  | METAL GLAZE               | 100K 5% | 1/10W |  |  |  |
| R25      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | R90                    | 1-216-073-00  | METAL GLAZE               | 10K 5%  | 1/10W |  |  |  |
| R26      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | R91                    | 1-216-081-00  | METAL GLAZE               | 22K 5%  | 1/10W |  |  |  |
| R27      | 1-249-422-11 | CARBON      | 2.7K 5% | 1/4W     | R92                    | 1-216-089-00  | METAL GLAZE               | 47K 5%  | 1/10W |  |  |  |
| R28      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | R93                    | 1-216-089-00  | METAL GLAZE               | 47K 5%  | 1/10W |  |  |  |
| R29      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | R94                    | 1-216-073-00  | METAL GLAZE               | 10K 5%  | 1/10W |  |  |  |
| R30      | 1-249-422-11 | CARBON      | 2.7K 5% | 1/4W     | R95                    | 1-216-073-00  | METAL GLAZE               | 10K 5%  | 1/10W |  |  |  |
| R31      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | R97                    | 1-216-073-00  | METAL GLAZE               | 10K 5%  | 1/10W |  |  |  |
| R32      | 1-216-079-00 | METAL GLAZE | 18K 5%  | 1/10W    | R100                   | 1-216-073-00  | METAL GLAZE               | 10K 5%  | 1/10W |  |  |  |
| R33      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | R101                   | 1-216-073-00  | METAL GLAZE               | 10K 5%  | 1/10W |  |  |  |
| R34      | 1-216-097-00 | METAL GLAZE | 100K 5% | 1/10W    | R102                   | 1-216-065-00  | METAL GLAZE               | 4.7K 5% | 1/10W |  |  |  |
| R35      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | R103                   | 1-216-065-00  | METAL GLAZE               | 4.7K 5% | 1/10W |  |  |  |
| R36      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | R104                   | 1-216-053-00  | METAL GLAZE               | 1.5K 5% | 1/10W |  |  |  |
| R37      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | R105                   | 1-216-053-00  | METAL GLAZE               | 1.5K 5% | 1/10W |  |  |  |
| R38      | 1-249-417-11 | CARBON      | 1K 5%   | 1/4W     | R106                   | 1-216-059-00  | METAL GLAZE               | 2.7K 5% | 1/10W |  |  |  |
| R39      | 1-216-093-00 | METAL GLAZE | 68K 5%  | 1/10W    | R107                   | 1-216-073-00  | METAL GLAZE               | 10K 5%  | 1/10W |  |  |  |
| R40      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | R181                   | 1-216-049-00  | METAL GLAZE               | 1K 5%   | 1/10W |  |  |  |
| R41      | 1-249-417-11 | CARBON      | 1K 5%   | 1/4W     | R191                   | 1-216-049-00  | METAL GLAZE               | 1K 5%   | 1/10W |  |  |  |
| R42      | 1-216-097-00 | METAL GLAZE | 100K 5% | 1/10W    | R208                   | 1-216-059-00  | METAL GLAZE               | 2.7K 5% | 1/10W |  |  |  |
| R43      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | R209                   | 1-216-059-00  | METAL GLAZE               | 2.7K 5% | 1/10W |  |  |  |
| R44      | 1-249-417-11 | CARBON      | 1K 5%   | 1/4W     | <SWITCH>               |               |                           |         |       |  |  |  |
| R45      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | S1                     | 1-572-482-11  | SWITCH, KEY BOARD (1 KEY) |         |       |  |  |  |
| R46      | 1-216-049-00 | METAL GLAZE | 1K 5%   | 1/10W    | S2                     | 1-572-482-11  | SWITCH, KEY BOARD (1 KEY) |         |       |  |  |  |
| R47      | 1-216-081-00 | METAL GLAZE | 22K 5%  | 1/10W    | <CRYSTAL>              |               |                           |         |       |  |  |  |
| R48      | 1-249-417-11 | CARBON      | 1K 5%   | 1/4W     | X1                     | 1-577-121-11  | VIBRATOR, CRYSTAL         |         |       |  |  |  |
| R49      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | *****                  |               |                           |         |       |  |  |  |
| R50      | 1-249-417-11 | CARBON      | 1K 5%   | 1/4W     | *1-617-890-11 HA BOARD |               |                           |         |       |  |  |  |
| R51      | 1-249-417-11 | CARBON      | 1K 5%   | 1/4W     | *****                  |               |                           |         |       |  |  |  |
| R52      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | <CONNECTOR>            |               |                           |         |       |  |  |  |
| R53      | 1-249-417-11 | CARBON      | 1K 5%   | 1/4W     | HA1                    | *1-566-055-11 | PIN, CONNECTOR 3P         |         |       |  |  |  |
| R54      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | HA2                    | *1-566-056-11 | PIN, CONNECTOR 4P         |         |       |  |  |  |
| R55      | 1-216-097-00 | METAL GLAZE | 100K 5% | 1/10W    | HA3                    | *1-566-064-11 | PIN, CONNECTOR 12P        |         |       |  |  |  |
| R56      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | HA4                    | *1-566-054-11 | PIN, CONNECTOR 2P         |         |       |  |  |  |
| R57      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | <RESISTOR>             |               |                           |         |       |  |  |  |
| R58      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | R1                     | 1-247-814-11  | CARBON                    | 200 5%  | 1/4W  |  |  |  |
| R59      | 1-216-097-00 | METAL GLAZE | 100K 5% | 1/10W    | R2                     | 1-215-469-00  | METAL                     | 100K 1% | 1/4W  |  |  |  |
| R60      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | <VARIABLE RESISTOR>    |               |                           |         |       |  |  |  |
| R61      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | RV1                    | 1-237-519-21  | RES, ADJ, CERMET          | 20K     |       |  |  |  |
| R62      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | <SWITCH>               |               |                           |         |       |  |  |  |
| R63      | 1-216-059-00 | METAL GLAZE | 2.7K 5% | 1/10W    | S1                     | 1-570-565-11  | SWITCH, PUSH (10 KEY)     |         |       |  |  |  |
| R64      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | S2                     | 1-570-565-11  | SWITCH, PUSH (10 KEY)     |         |       |  |  |  |
| R65      | 1-216-059-00 | METAL GLAZE | 2.7K 5% | 1/10W    | S3                     | 1-570-565-11  | SWITCH, PUSH (10 KEY)     |         |       |  |  |  |
| R66      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | S4                     | 1-570-565-11  | SWITCH, PUSH (10 KEY)     |         |       |  |  |  |
| R67      | 1-216-059-00 | METAL GLAZE | 2.7K 5% | 1/10W    | S5                     | 1-570-565-11  | SWITCH, PUSH (10 KEY)     |         |       |  |  |  |
| R68      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    | S6                     | 1-570-565-11  | SWITCH, PUSH (10 KEY)     |         |       |  |  |  |
| R69      | 1-216-059-00 | METAL GLAZE | 2.7K 5% | 1/10W    |                        |               |                           |         |       |  |  |  |
| R70      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    |                        |               |                           |         |       |  |  |  |
| R71      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    |                        |               |                           |         |       |  |  |  |
| R72      | 1-216-097-00 | METAL GLAZE | 100K 5% | 1/10W    |                        |               |                           |         |       |  |  |  |
| R73      | 1-216-097-00 | METAL GLAZE | 100K 5% | 1/10W    |                        |               |                           |         |       |  |  |  |
| R74      | 1-216-049-00 | METAL GLAZE | 1K 5%   | 1/10W    |                        |               |                           |         |       |  |  |  |
| R75      | 1-216-081-00 | METAL GLAZE | 22K 5%  | 1/10W    |                        |               |                           |         |       |  |  |  |
| R76      | 1-216-097-00 | METAL GLAZE | 100K 5% | 1/10W    |                        |               |                           |         |       |  |  |  |
| R77      | 1-216-074-00 | METAL GLAZE | 11K 5%  | 1/10W    |                        |               |                           |         |       |  |  |  |
| R78      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    |                        |               |                           |         |       |  |  |  |
| R79      | 1-216-080-00 | METAL GLAZE | 20K 5%  | 1/10W    |                        |               |                           |         |       |  |  |  |
| R80      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    |                        |               |                           |         |       |  |  |  |
| R81      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    |                        |               |                           |         |       |  |  |  |
| R82      | 1-216-097-00 | METAL GLAZE | 100K 5% | 1/10W    |                        |               |                           |         |       |  |  |  |
| R83      | 1-216-073-00 | METAL GLAZE | 10K 5%  | 1/10W    |                        |               |                           |         |       |  |  |  |

**HA Y TB TA Z PA**

| REF. NO.             | PART NO.           | DESCRIPTION                   | REMARK   | REF. NO. | PART NO. | DESCRIPTION | REMARK |
|----------------------|--------------------|-------------------------------|----------|----------|----------|-------------|--------|
| *****                |                    |                               |          |          |          |             |        |
| S7                   | 1-570-565-11       | SWITCH, PUSH (10 KEY)         |          |          |          |             |        |
| S8                   | 1-570-565-11       | SWITCH, PUSH (10 KEY)         |          |          |          |             |        |
| S9                   | 1-570-565-11       | SWITCH, PUSH (10 KEY)         |          |          |          |             |        |
| S10                  | 1-570-565-11       | SWITCH, PUSH (10 KEY)         |          |          |          |             |        |
| *****                |                    |                               |          |          |          |             |        |
| *1-617-893-11        | Y BOARD            | *****                         |          |          |          |             |        |
| <DIODE>              |                    |                               |          |          |          |             |        |
| D1                   | 8-719-812-43       | DIODE TLG124A                 |          |          |          |             |        |
| *****                |                    |                               |          |          |          |             |        |
| *A-1390-344-A        | TB BOARD, COMPLETE | *****                         |          |          |          |             |        |
| <CONNECTOR>          |                    |                               |          |          |          |             |        |
| CN1                  | *1-564-431-11      | POST, CONNECTOR 3P            |          |          |          |             |        |
| CN2                  | *1-564-431-11      | POST, CONNECTOR 3P            |          |          |          |             |        |
| CN11                 | *1-561-724-00      | SOCKET, CONNECTOR 2P          |          |          |          |             |        |
| CN12                 | *1-561-724-00      | SOCKET, CONNECTOR 2P          |          |          |          |             |        |
| <RESISTOR>           |                    |                               |          |          |          |             |        |
| R100                 | 1-249-422-11       | CARBON                        | 2.7K 5%  | 1/4W     |          |             |        |
| <CONNECTOR>          |                    |                               |          |          |          |             |        |
| TB4                  | *1-566-054-11      | PIN, CONNECTOR 2P             |          |          |          |             |        |
| TB5                  | *1-566-054-11      | PIN, CONNECTOR 2P             |          |          |          |             |        |
| TB6                  | *1-566-060-11      | PIN, CONNECTOR 8P             |          |          |          |             |        |
| TB7                  | *1-566-054-11      | PIN, CONNECTOR 2P             |          |          |          |             |        |
| TB8                  | *1-566-058-11      | PIN, CONNECTOR 6P             |          |          |          |             |        |
| TB9                  | *1-566-060-11      | PIN, CONNECTOR 8P             |          |          |          |             |        |
| TB10                 | *1-566-064-11      | PIN, CONNECTOR 12P            |          |          |          |             |        |
| TB11                 | *1-566-055-11      | PIN, CONNECTOR 3P             |          |          |          |             |        |
| TB12                 | *1-566-064-11      | PIN, CONNECTOR 12P            |          |          |          |             |        |
| TB13                 | *1-566-062-11      | PIN, CONNECTOR 10P            |          |          |          |             |        |
| TB14                 | *1-566-064-11      | PIN, CONNECTOR 12P            |          |          |          |             |        |
| TB15                 | *1-566-060-11      | PIN, CONNECTOR 8P             |          |          |          |             |        |
| TB16                 | *1-566-057-11      | PIN, CONNECTOR 5P             |          |          |          |             |        |
| TB17                 | *1-566-057-11      | PIN, CONNECTOR 5P             |          |          |          |             |        |
| TB18                 | *1-566-055-11      | PIN, CONNECTOR 3P             |          |          |          |             |        |
| TB19                 | *1-566-056-11      | PIN, CONNECTOR 4P             |          |          |          |             |        |
| TB20                 | *1-566-056-11      | PIN, CONNECTOR 4P             |          |          |          |             |        |
| TB21                 | *1-566-056-11      | PIN, CONNECTOR 4P             |          |          |          |             |        |
| TB22                 | *1-566-054-11      | PIN, CONNECTOR 2P             |          |          |          |             |        |
| TB23                 | *1-566-054-11      | PIN, CONNECTOR 2P             |          |          |          |             |        |
| TB24                 | *1-566-054-11      | PIN, CONNECTOR 2P             |          |          |          |             |        |
| TB28                 | *1-566-062-11      | PIN, CONNECTOR 10P            |          |          |          |             |        |
| TB29                 | *1-566-060-11      | PIN, CONNECTOR 8P             |          |          |          |             |        |
| TB31                 | *1-561-337-00      | CONNECTOR, MULTI              |          |          |          |             |        |
| TB32                 | *1-561-337-00      | CONNECTOR, MULTI              |          |          |          |             |        |
| TB33                 | *1-561-337-00      | CONNECTOR, MULTI              |          |          |          |             |        |
| TB34                 | *1-561-337-00      | CONNECTOR, MULTI              |          |          |          |             |        |
| TB35                 | *1-561-337-00      | CONNECTOR, MULTI              |          |          |          |             |        |
| TB36                 | *1-561-337-00      | CONNECTOR, MULTI              |          |          |          |             |        |
| TB37                 | *1-561-337-00      | CONNECTOR, MULTI              |          |          |          |             |        |
| TB38                 | *1-561-337-00      | CONNECTOR, MULTI              |          |          |          |             |        |
| TB39                 | *1-561-337-00      | CONNECTOR, MULTI              |          |          |          |             |        |
| TB40                 | *1-561-337-00      | CONNECTOR, MULTI              |          |          |          |             |        |
| <CONNECTOR>          |                    |                               |          |          |          |             |        |
| TA1                  | *1-566-054-11      | PIN, CONNECTOR 2P             |          |          |          |             |        |
| TA2                  | *1-566-055-11      | PIN, CONNECTOR 3P             |          |          |          |             |        |
| TA3                  | *1-566-056-11      | PIN, CONNECTOR 4P             |          |          |          |             |        |
| TA4                  | *1-566-057-11      | PIN, CONNECTOR 5P             |          |          |          |             |        |
| TA5                  | *1-566-058-11      | PIN, CONNECTOR 6P             |          |          |          |             |        |
| TA6                  | *1-566-055-11      | PIN, CONNECTOR 3P             |          |          |          |             |        |
| TA7                  | *1-566-058-11      | PIN, CONNECTOR 6P             |          |          |          |             |        |
| TA8                  | *1-566-042-11      | PIN, CONNECTOR 3P             |          |          |          |             |        |
| TA9                  | *1-566-045-11      | PIN, CONNECTOR 6P             |          |          |          |             |        |
| TA10                 | *1-566-045-11      | PIN, CONNECTOR 6P             |          |          |          |             |        |
| TA11                 | *1-566-045-11      | PIN, CONNECTOR 6P             |          |          |          |             |        |
| TA12                 | *1-508-786-00      | PIN, CONNECTOR (5MM PITCH) 2P |          |          |          |             |        |
| TA13                 | *1-561-337-00      | CONNECTOR, MULTI              |          |          |          |             |        |
| TA14                 | *1-561-337-00      | CONNECTOR, MULTI              |          |          |          |             |        |
| TA15                 | *1-561-337-00      | CONNECTOR, MULTI              |          |          |          |             |        |
| <CAPACITOR>          |                    |                               |          |          |          |             |        |
| *A-1394-088-A        | Z BOARD, COMPLETE  | *****                         |          |          |          |             |        |
| <CONNECTOR>          |                    |                               |          |          |          |             |        |
| *1-561-337-21        | CONNECTOR, MULTI   |                               |          |          |          |             |        |
| <PA BOARD, COMPLETE> |                    |                               |          |          |          |             |        |
| C101                 | 1-124-046-00       | ELECT                         | 10MF     | 20%      | 160V     |             |        |
| C102                 | 1-124-910-11       | ELECT                         | 47MF     | 20%      | 25V      |             |        |
| C103                 | 1-123-024-21       | ELECT                         | 33MF     |          | 160V     |             |        |
| C104                 | 1-136-171-00       | FILM                          | 0.33MF   | 5%       | 50V      |             |        |
| C105                 | 1-108-700-11       | MYLAR                         | 0.047MF  | 10%      | 200V     |             |        |
| C106                 | 1-108-700-11       | MYLAR                         | 0.047MF  | 10%      | 200V     |             |        |
| C107                 | 1-102-030-00       | CERAMIC                       | 330PF    | 10%      | 500V     |             |        |
| C108                 | 1-136-072-00       | FILM                          | 0.0063MF | 3%       | 2KV      |             |        |
| C109                 | 1-161-753-00       | CERAMIC                       | 470PF    | 10%      | 3KV      |             |        |
| C110                 | 1-162-114-00       | CERAMIC                       | 0.0047MF |          | 2KV      |             |        |
| C111                 | 1-136-601-11       | FILM                          | 0.01MF   | 10%      | 630V     |             |        |
| C112                 | 1-136-557-11       | FILM                          | 0.0033MF | 5%       | 630V     |             |        |
| C113                 | 1-136-173-00       | FILM                          | 0.47MF   | 5%       | 50V      |             |        |
| C116                 | 1-126-233-11       | ELECT                         | 22MF     | 20%      | 16V      |             |        |
| C117                 | 1-124-910-11       | ELECT                         | 47MF     | 20%      | 16V      |             |        |
| C118                 | 1-102-973-00       | CERAMIC                       | 100PF    | 5%       | 50V      |             |        |
| C119                 | 1-108-796-11       | MYLAR                         | 0.0022MF | 5%       | 50V      |             |        |
| C120                 | 1-124-915-11       | ELECT                         | 10MF     | 20%      | 16V      |             |        |
| C121                 | 1-102-074-00       | CERAMIC                       | 0.001MF  | 10%      | 50V      |             |        |
| C122                 | 1-136-165-00       | FILM                          | 0.1MF    | 5%       | 50V      |             |        |
| C123                 | 1-136-169-00       | FILM                          | 0.22MF   | 5%       | 50V      |             |        |
| C124                 | 1-136-111-00       | FILM                          | 1MF      | 5%       | 200V     |             |        |
| C125                 | 1-136-169-00       | FILM                          | 0.22MF   | 5%       | 50V      |             |        |
| C126                 | 1-102-030-00       | CERAMIC                       | 330PF    | 10%      | 500V     |             |        |
| C127                 | 1-130-736-11       | FILM                          | 0.01MF   | 5%       | 50V      |             |        |
| C128                 | 1-130-994-11       | FILM                          | 0.033MF  | 5%       | 50V      |             |        |
| C129                 | 1-123-369-00       | ELECT                         | 4.7MF    | 20%      | 25V      |             |        |
| C130                 | 1-102-074-00       | CERAMIC                       | 0.001MF  | 10%      | 50V      |             |        |
| C131                 | 1-136-153-00       | FILM                          | 0.01MF   | 5%       | 50V      |             |        |
| C132                 | 1-101-004-00       | CERAMIC                       | 0.01MF   |          | 50V      |             |        |

PA

- The components identified by **█** in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

Les composants identifiés par une trame et une marque **█** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by shading and mark **█** are critical for safety. Replace only with part number specified.

| REF. NO.     | PART NO.      | DESCRIPTION                | REMARK     | REF. NO. | PART NO. | DESCRIPTION | REMARK       |                        |
|--------------|---------------|----------------------------|------------|----------|----------|-------------|--------------|------------------------|
| C201         | 1-108-634-11  | MYLAR                      | 0.047MF    | 10%      | 100V     | Q104        | 8-729-804-48 | TRANSISTOR 2SC3675     |
| C202         | 1-124-915-11  | ELECT                      | 10MF       | 20%      | 16V      | Q105        | 8-729-804-48 | TRANSISTOR 2SC3675     |
| C203         | 1-101-006-00  | CERAMIC                    | 0.047MF    |          | 50V      | Q106        | 8-729-804-48 | TRANSISTOR 2SC3675     |
| C204         | 1-124-122-11  | ELECT                      | 100MF      | 20%      | 25V      | Q107        | 8-729-119-80 | TRANSISTOR 2SC2688-LK  |
| C205         | 1-126-541-11  | ELECT                      | 330MF      | 20%      | 16V      | Q108        | 8-729-119-80 | TRANSISTOR 2SC2688-LK  |
| C207         | 1-124-122-11  | ELECT                      | 100MF      | 20%      | 25V      | Q109        | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |
| C209         | 1-101-006-00  | CERAMIC                    | 0.047MF    |          | 50V      | Q110        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| C212         | 1-101-006-00  | CBRAMIC                    | 0.047MF    |          | 50V      | Q111        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| C213         | 1-124-915-11  | ELECT                      | 10MF       | 20%      | 50V      | Q112        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| C214         | 1-124-915-11  | ELECT                      | 10MF       | 20%      | 50V      | Q201        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| C215         | 1-124-915-11  | ELECT                      | 10MF       | 20%      | 16V      | Q202        | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |
| C216         | 1-136-153-00  | FILM                       | 0.01MF     | 5%       | 50V      |             |              | <RESISTOR>             |
| C217         | 1-124-915-11  | ELECT                      | 10MF       | 20%      | 16V      | R101        | 1-216-347-11 | METAL OXIDE            |
| C218         | 1-126-541-11  | ELECT                      | 330MF      | 20%      | 16V      | R102        | 1-247-887-00 | CARBON                 |
| C219         | 1-101-004-00  | CBRAMIC                    | 0.01MF     |          | 50V      | R103        | 1-249-419-11 | CARBON                 |
| C220         | 1-130-994-11  | FILM                       | 0.033MF    | 5%       | 50V      | R104        | 1-216-464-11 | METAL OXIDE            |
| C221         | 1-136-171-00  | FILM                       | 0.033MF    | 5%       | 50V      | R105        | 1-216-359-00 | METAL OXIDE            |
| <DIODE>      |               |                            |            |          |          |             |              |                        |
| D102         | 8-719-300-80  | DIODE                      | RU-1C      |          |          | R106        | 1-216-350-11 | METAL OXIDE            |
| D103         | 8-719-300-80  | DIODE                      | RU-1C      |          |          | R107        | 1-216-372-11 | METAL OXIDE            |
| D104         | 8-719-300-80  | DIODE                      | RU-1C      |          |          | R108        | 1-212-998-00 | FUSIBLE                |
| D105         | 8-719-300-80  | DIODE                      | RU-1C      |          |          | R109        | 1-215-898-11 | METAL OXIDE            |
| D106         | 8-719-901-19  | DIODE                      | V11N       |          |          | R110        | 1-202-719-00 | SOLID                  |
| D107         | 8-719-109-93  | DIODE                      | RD6.2ESB2  |          |          | R111        | 1-202-723-00 | SOLID                  |
| D109         | 8-719-911-19  | DIODE                      | ISS119     |          |          | R112        | 1-214-937-00 | CARBON                 |
| D110         | 8-719-911-19  | DIODE                      | ISS119     |          |          | R113        | 1-249-417-11 | CARBON                 |
| D111         | 8-719-109-63  | DIODE                      | RD3.0ESB2  |          |          | R114        | 1-249-429-11 | CARBON                 |
| D201         | 8-719-911-19  | DIODE                      | ISS119     |          |          | R115        | 1-202-719-00 | SOLID                  |
| D202         | 8-719-109-72  | DIODE                      | RD3.9ESB2  |          |          | R116        | 1-249-423-11 | CARBON                 |
| D203         | 8-719-911-19  | DIODE                      | ISS119     |          |          | R117        | 1-249-429-11 | CARBON                 |
| D204         | 8-719-000-28  | THYRISTOR                  | CRO2AM-8   |          |          | R118        | 1-249-429-11 | CARBON                 |
| D205         | 8-719-000-28  | THYRISTOR                  | CRO2AM-8   |          |          | R119        | 1-214-937-00 | CARBON                 |
| D206         | 8-719-911-19  | DIODE                      | ISS119     |          |          | R120        | 1-215-451-00 | METAL                  |
| D207         | 8-719-911-19  | DIODE                      | ISS119     |          |          | R121        | 1-249-435-11 | CARBON                 |
| D215▲        | 8-759-107-91  | IC                         | UPC574J-TP |          |          | R122        | 1-249-435-11 | CARBON                 |
| D216▲        | 8-759-107-91  | IC                         | UPC574J-TP |          |          | R123        | 1-215-459-00 | METAL                  |
| D217         | 8-719-911-19  | DIODE                      | ISS119     |          |          | R124▲       | 1-215-455-00 | METAL                  |
| D218         | 8-719-911-19  | DIODE                      | ISS119     |          |          | R125        | 1-215-455-00 | METAL                  |
| <IC>         |               |                            |            |          |          |             |              |                        |
| IC1          | 8-759-100-75  | IC                         | UPC1394C   |          |          | R126▲       |              | METAL                  |
| IC2          | 8-759-729-03  | IC                         | NJM2903D   |          |          | R127        | 1-249-434-11 | CARBON                 |
| IC3          | 8-759-729-03  | IC                         | NJM2903D   |          |          | R128        | 1-249-427-11 | CARBON                 |
| IC4          | 8-759-990-82  | IC                         | TL082CP    |          |          | R129        | 1-249-440-11 | CARBON                 |
| <COIL>       |               |                            |            |          |          |             |              |                        |
| L1           | 1-459-215-00  | COIL (WITH CORE)           |            |          |          | R130        | 1-249-425-11 | CARBON                 |
| <CONNECTOR>  |               |                            |            |          |          |             |              |                        |
| PA1          | *I-508-765-00 | PIN, CONNECTOR (5MM PITCH) | 3P         |          |          | R131        | 1-249-429-11 | CARBON                 |
| PA2          | *I-508-766-00 | PIN, CONNECTOR (5MM PITCH) | 4P         |          |          | R132        | 1-249-428-11 | CARBON                 |
| <TRANSISTOR> |               |                            |            |          |          |             |              |                        |
| Q101         | 8-729-802-71  | TRANSISTOR                 | 2SA1407-D  |          |          | R133        | 1-249-417-11 | CARBON                 |
| Q102         | 8-729-201-62  | TRANSISTOR                 | 2SC2555-2  |          |          | R134        | 1-249-437-11 | CARBON                 |
| Q103         | 8-729-202-53  | TRANSISTOR                 | 2SD1556-LB |          |          | R135        | 1-249-441-11 | CARBON                 |
| <TRANSISTOR> |               |                            |            |          |          |             |              |                        |
|              |               |                            |            |          |          | R136        | 1-249-423-11 | CARBON                 |
|              |               |                            |            |          |          | R137        | 1-215-461-00 | METAL                  |
|              |               |                            |            |          |          | R138        | 1-215-440-00 | METAL                  |
|              |               |                            |            |          |          | R139        | 1-249-424-11 | CARBON                 |
|              |               |                            |            |          |          | R140        | 1-249-417-11 | CARBON                 |
|              |               |                            |            |          |          | R141        | 1-249-429-11 | CARBON                 |
|              |               |                            |            |          |          | R142        | 1-249-419-11 | CARBON                 |
|              |               |                            |            |          |          | R143        | 1-215-439-00 | METAL                  |
|              |               |                            |            |          |          | R144        | 1-215-439-00 | METAL                  |
|              |               |                            |            |          |          | R145        | 1-249-422-11 | CARBON                 |
|              |               |                            |            |          |          | R146        | 1-249-422-11 | CARBON                 |
|              |               |                            |            |          |          | R147        | 1-249-422-11 | CARBON                 |
|              |               |                            |            |          |          | R148        | 1-249-422-11 | CARBON                 |
|              |               |                            |            |          |          | R149        | 1-249-417-11 | CARBON                 |
|              |               |                            |            |          |          | R150        | 1-249-417-11 | CARBON                 |
|              |               |                            |            |          |          | R151        | 1-249-423-11 | CARBON                 |
|              |               |                            |            |          |          | R152        | 1-249-441-11 | CARBON                 |
|              |               |                            |            |          |          | R153        | 1-249-441-11 | CARBON                 |
|              |               |                            |            |          |          | R154        | 1-249-433-11 | CARBON                 |

The components identified by **█** in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

Les composants identifiés par une trame et une marque **█** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- The components identified by **█** in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

| REF.NO. | PART NO.     | DESCRIPTION | R    | B  | M    | REMARK | REF.NO. | PART NO.           | DESCRIPTION                    | R               | B | M | REMARK                         |  |
|---------|--------------|-------------|------|----|------|--------|---------|--------------------|--------------------------------|-----------------|---|---|--------------------------------|--|
| R201    | 1-215-899-11 | METAL OXIDE | 15K  | 5% | 2W   | F      |         |                    |                                |                 |   |   | (BVM-1911 ONLY)                |  |
| R202    | 1-215-899-11 | METAL OXIDE | 15K  | 5% | 2W   | F      |         | 1-941-995-05       | CONNECTOR ASSY, MICRO 13P      |                 |   |   | (BVM-2011P ONLY)               |  |
| R203    | 1-215-899-11 | METAL OXIDE | 15K  | 5% | 2W   | F      |         | S901A.1-570-052-12 | SWITCH, PUSH (AC POWER)(1 KEY) |                 |   |   |                                |  |
| R204    | 1-215-899-11 | METAL OXIDE | 15K  | 5% | 2W   | F      |         | V901A.8-733-053-05 | CRT SD-112 (M49JJP20X)         |                 |   |   | (BVM-1911 ONLY)                |  |
| R205    | 1-249-429-11 | CARBON      | 10K  | 5% | 1/4W |        |         | V901A.8-733-054-05 | CRT SD-112 (M49JJP21X)         |                 |   |   | (BVM-2011P ONLY)               |  |
| R206    | 1-249-421-11 | CARBON      | 2.2K | 5% | 1/4W |        |         |                    |                                |                 |   |   | *****                          |  |
| R207    | 1-249-393-11 | CARBON      | 10   | 5% | 1/4W |        |         |                    |                                |                 |   |   | ACCESORIES & PACKING MATERIALS |  |
| R208    | 1-249-429-11 | CARBON      | 10K  | 5% | 1/4W |        |         |                    |                                |                 |   |   | *****                          |  |
| R209    | 1-249-441-11 | CARBON      | 100K | 5% | 1/4W |        |         |                    |                                |                 |   |   |                                |  |
| R210    | 1-249-429-11 | CARBON      | 10K  | 5% | 1/4W |        |         |                    |                                |                 |   |   |                                |  |
| R211    | 1-249-429-11 | CARBON      | 10K  | 5% | 1/4W |        |         |                    |                                |                 |   |   |                                |  |
| R212    | 1-249-433-11 | CARBON      | 22K  | 5% | 1/4W |        |         |                    |                                |                 |   |   |                                |  |
| R213    | 1-249-415-11 | CARBON      | 680  | 5% | 1/4W |        |         |                    |                                |                 |   |   |                                |  |
| R214    | 1-249-429-11 | CARBON      | 10K  | 5% | 1/4W |        |         |                    |                                |                 |   |   |                                |  |
| R220    | 1-215-455-00 | METAL       | 27K  | 1% | 1/4W |        |         | *A-1394-088-A      | Z BOARD, COMPLETE              |                 |   |   | (INCLUDING 1-561-337-21)       |  |
| R221    | 1-215-437-00 | METAL       | 4.7K | 1% | 1/4W |        |         |                    | 1-561-337-21                   | CONNECTOR MULTI |   |   |                                |  |
| R222A.  |              | METAL       |      |    | 1/6W |        |         | A.1-551-812-11     | CORD POWER (7.0/125V)          |                 |   |   | (BVM-1911 ONLY)                |  |
| R223    | 1-215-486-00 | METAL       | 510K | 1% | 1/4W |        |         | A.1-590-151-11     | CORD SET, POWER (10A/250V)     |                 |   |   | (BVM-2011P ONLY)               |  |
| R224    | 1-215-471-00 | METAL       | 120K | 1% | 1/4W |        |         |                    |                                |                 |   |   |                                |  |
| R225    | 1-215-458-00 | METAL       | 36K  | 1% | 1/4W |        |         |                    |                                |                 |   |   |                                |  |
| R226    | 1-215-449-00 | METAL       | 15K  | 1% | 1/4W |        |         | 2-990-242-01       | HOLDER (B), PLUG               |                 |   |   |                                |  |
| R227A.  |              | METAL       |      |    | 1/6W |        |         | 4-039-985-01       | MANUAL, O&M                    |                 |   |   |                                |  |
| R228A.  |              | METAL       |      |    | 1/6W |        |         | 4-378-901-01       | KEY                            |                 |   |   |                                |  |
| R231    | 1-249-415-11 | CARBON      | 680  | 5% | 1/4W |        |         | 4-386-841-01       | LABEL, TALLY NUMBER            |                 |   |   |                                |  |
| R232    | 1-249-429-11 | CARBON      | 10K  | 5% | 1/4W |        |         | 4-386-841-11       | LABEL, TALLY NUMBER            |                 |   |   |                                |  |
| R237    | 1-215-455-00 | METAL       | 27K  | 1% | 1/4W |        |         | *4-039-999-01      | INDIVIDUAL CARTON              |                 |   |   | (BVM-2011P ONLY)               |  |
| R238    | 1-215-437-00 | METAL       | 4.7K | 1% | 1/4W |        |         | *4-040-000-01      | INDIVIDUAL CARTON              |                 |   |   | (BVM-1911 ONLY)                |  |
| R239A.  |              | METAL       |      |    | 1/6W |        |         | *4-361-988-02      | BAG, PROTECTION                |                 |   |   |                                |  |
| R240    | 1-215-486-00 | METAL       | 510K | 1% | 1/4W |        |         | *4-386-858-01      | CUSHION (UPPER)                |                 |   |   |                                |  |
| R241    | 1-215-471-00 | METAL       | 120K | 1% | 1/4W |        |         | *4-386-875-01      | CUSHION (FRONT LOWER)          |                 |   |   |                                |  |
| R242    | 1-249-422-11 | CARBON      | 2.7K | 5% | 1/4W |        |         | *4-386-876-01      | CUSHION (REAR LOWER)           |                 |   |   |                                |  |
| R243    | 1-249-422-11 | CARBON      | 2.7K | 5% | 1/4W |        |         |                    |                                |                 |   |   |                                |  |
| R245    | 1-247-887-00 | CARBON      | 220K | 5% | 1/4W |        |         |                    |                                |                 |   |   |                                |  |
| R246    | 1-249-422-11 | CARBON      | 2.7K | 5% | 1/4W |        |         |                    |                                |                 |   |   |                                |  |
| R247    | 1-249-422-11 | CARBON      | 2.7K | 5% | 1/4W |        |         |                    |                                |                 |   |   |                                |  |
| R248    | 1-249-399-11 | CARBON      | 33   | 5% | 1/4W |        |         |                    |                                |                 |   |   |                                |  |
| R249    | 1-249-399-11 | CARBON      | 33   | 5% | 1/4W |        |         |                    |                                |                 |   |   |                                |  |
| R250    | 1-249-411-11 | CARBON      | 330  | 5% | 1/4W |        |         |                    |                                |                 |   |   |                                |  |

## &lt;VARIABLE RESISTOR&gt;

RVI 1-237-500-21 RES, ADJ, CERMET 1K

## &lt;TRANSFORMER&gt;

|    |              |                               |
|----|--------------|-------------------------------|
| T1 | 1-437-078-00 | TRANSFORMER, HORIZONTAL DRIVE |
| T2 | 1-437-079-00 | TRANSFORMER, HORIZONTAL DRIVE |
| T3 | 1-439-384-11 | LOT                           |

## MISCELLANEOUS

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- ▲.1-237-165-12 RESISTOR ASSY, HIGH-VOLTAGE
- ▲.1-426-328-11 COIL, DEGAUSSING
- ▲.1-439-382-21 TRANSFORMER ASSY, FLYBACK
- ▲.1-451-287-21 DEFLECTION YOKE (Y14FAA)
- 1-452-032-00 MAGNET, DISK;10MMΦ
  
- ▲.1-452-117-31 CRT NECK ASSY
- ▲.1-452-261-22 CRT NECK ASSY (362)
- ▲.1-453-103-32 HIGH-VOLTAGE BLOCK (HB-203(B))
- ▲.1-532-746-11 FUSE, GLASS TUBE (4A/125V)
- 1-565-791-11 CONNECTOR, BNC 1P

1-941-422-15 CONNECTOR ASSY (ROUND TYPE)12P